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CALIFORNIA STATE JOURNAL OF MEDICINE

WHEN every student in school receives some training in biology, the quack, the patent medicine cheat, the aggrandized rubber and manipulator, and the knotted string faddist will have a less fertile soil for their mushroom activities. Since we are alive we need to be able to think biologically about our individual and mass problems if we are to avoid deception and danger.

From President Wilbur's Address

JULY · 1923

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VOL. XXI JULY, 1923 No. 7

ORIGINAL ARTICLES

RESPONSIBILITY FOR STATEMENTS AND CONCLUSIONS IN ORIGINAL ARTICLES

The author of an article appearing in the JOURNAL *is entirely responsible for all statements and conclusions. These may or may not be in harmony with the views of the editorial staff. Furthermore, authors are largely responsible for the language and method of presenting their subjects. All manuscripts will be carefully read, but editorial privileges will be exercised only to a very limited extent. It is believed that the manner of presentation of any subject by any author determines to no small degree the value of his conclusions. Therefore, both the author and the reader, in our opinion, are entitled to have the subject as presented by the author as little disturbed as possible by the editors. However, the right to reduce or reject any article is always reserved.*

THE MEDICAL TREATMENT OF PEPTIC ULCER

By PHILIP KING BROWN, M. D., San Francisco
(From the Medical Service of the Southern Pacific Hospital.)

The treatment of any disease depends on two main factors—a removal or amelioration of the conditions that cause it, and the symptoms and damage it produces. Since we know little about the causes of peptic ulcer, our chief aim has been to *deal* with the subjective symptoms of pain and the burning of the usually accompanying hyperacidity, with hemorrhage, with symptoms arising from mechanical obstruction either from contracting scar, adhesions or pylorospasm, and finally with symptoms from extension of inflammation to neighboring parts, often by perforation, commonly by close contact of these parts with the diseased area.

So far as etiology goes we have learned to recognize the likelihood of ulceration of the duodenum in uremic conditions, of ulcer associated with burns of the body, and as Ophuls has shown, with ulcer associated with arteriosclerotic changes. These are unusual occurrences, calling for no special treatment because of the probable etiology.

In serial Wassermann examinations in fifty-five gastric ulcers four gave a Wassermann ++++, while in ninety-seven duodenal ulcers three gave a Wassermann ++++. This does not mean necessarily that these ulcers are syphilitic, nor does it mean that an ulcer associated with gastric crises of tabes is necessarily syphilitic, but we have had a few of these cases that were not amenable to ordinary treatment and whose symptoms, including hemorrhage, disappeared immediately on intensive anti-syphilitic treatment. This has led us to believe that some of these ulcers were syphilitic, and that in every case of ulcer a Wassermann should be made.

The relation of primary foci of infection in the mouth to ulcer has received much attention since Rosenau's work on the infectious origin of ulcer, and so reasonable does it seem, that we are growingly convinced that its commonness among railroad employes is influenced by mouth infection quite as much as by their notorious lack of proper dietetic regulation both as to quality and preparation of food, and regularity in eating, as well as haste. In the fifty-three cases that have passed through my wards in the past fifteen months, eleven have already been operated on for removal of the appendix, seven more of the eighteen that came to surgery had the appendix removed at time of operation on the gastric condition because of obvious clinical findings of trouble in the appendix. Two more had had operations on the gall-bladder and ten others were said by the roentgenologist to have cholecystitis. That these infections in the gastrointestinal tract have something to do with mouth infections seems highly probable, and in no single one of the series of fifty-three cases was the mouth in good condition except where all the teeth were on plates. Interesting also in this connection is the impression gained from discussions during the war with surgeons in the British army, who, as members of the Interallied Research Society run by the American Red Cross, assembled monthly in Paris to thresh out methods of handling the common problems of medicine and surgery. Hundreds of thousands of the lower class of British subjects received careful medical consideration for the first time, and the notorious frequency of advanced teeth and tonsil infections accompanied by ulcer of the stomach and duodenum, cholecystitis, and appendicitis was frequently commented on by British surgeons.

By way of prophylaxis, as well as an aid to healing, it is part of our routine treatment to care for

the mouth. If a patient presents himself with disease of his digestive tract it is our duty to put the entire tract in as nearly normal condition as possible, and our success in the medical treatment of gastric and duodenal ulcers, shown by the small number who return to us with recurrent symptoms, seems fairly attributable to this fact, and the early recognition of the absolute limits of medical treatment in certain cases.

For the relief of the commonest symptoms of ulcer, pain and burning—numerous plans have been put forward, all of them based on much the same idea—to rest the part and irritate it as little as possible. The three plans which contain the most generally accepted methods are outlined on the accompanying charts and were advocated by von Leube, Lenhartz, and Sippy. They all include rest in bed from two to four weeks, bland and slowly increased diet, moving the bowel by enema, the use of alkalis with more or less routine, and lavage to cleanse and remove excess of secretion or secretion abnormally present. Because it is the last one advocated, the Sippy regime is at present the most popular, although there is no reason for all the alkali elaborately dealt out day and night, or the lavage in over 90 per cent of the cases. We have absolutely no proof that they do good by hastening cure, and I am convinced that the frequent use of the stomach or even duodenal tube may do harm, and is an unnecessary procedure. As a basis for these statements an analysis of the fifty-three cases referred to shows that pain was not a symptom in five of them, that in the others it was the most marked symptom, and in all it was relieved in part, if not entirely, within three days and in no case did it persist at all beyond six days, and then was found to be due to accompanying cholecystitis. The recurrence of pain was found in one case to be due to rice, another to meat, and another to milk, and some delay is inevitable in rearranging a diet so that pain may be avoided. We do not condemn entirely the use of alkalis, and they are used in many cases, but *never* as a routine.

The Von Leube Diet

Rest in bed. No food or water by mouth for three days. Murphy drip from the start, 2 per cent glucose; thirty drops a minute; 1500 cc. in twenty-four hours. Hot applications (electric pad) to epigastrium. Fourth day 2 oz. fully peptonized milk (60 cc.), alternating with 2 oz. still Vichy every hour.

7 a. m. to 8 p. m.—Daily increase in milk by 1 oz. (30 cc.) until milk reaches 8 oz. (250 cc.) and Vichy 4 oz. (125 cc.). Enema for bowels. Alkaline powders for acidity. Semi-solids on tenth day, and then Carlsbad if breath is bad and bowels constipated. Silver nitrate if pain persists.

Sippy Treatment—Rest in bed three to four weeks. Bismuth subnitrate one-half hour A. C. 4 grams. Feed every hour—7 a. m. to 7 p. m.—equal parts milk and cream (1 to 3 oz. 30 to 90 cc.). Schedule may be changed to two or three hourly. Halfway between feedings, 10 grains (.6 grams) each of calcined magnesia and soda bicarbonate, alternating with 10 gr. bismuth subnitrate and 20 to 30 gr. soda bicarbonate. In event of diarrhea use bismuth powder and less magnesia.

After two or three days, soft eggs and well-cooked fine cereals are slowly added, so that in ten days, besides the milk and cream, three soft eggs and 9 oz. cereal are given in six feedings. No one feeding to make a total in stomach of over 6 oz. Stomach or duodenal tube used to test and control acidity. Three alkaline powders are given during the night and tube used two or three times a night to remove any acid secretion; rarely necessary after first few days.

The disappearance of pain on diet alone is a valuable guide to therapy. For the burning sensation of hyperacidity or hypersecretion it is frequently necessary to give alkali and this is to be resorted to in preference to lavage, but in every case some modification in diet or interval of feeding is in order, so that neutralization by alkali is no longer necessary. With the alkali cut down to 10 per cent of what is used in the Sippy diet and the lavage eliminated, the Sippy treatment does not differ in fundamentals from the Lenhartz, and since the introduction of that regime we have never seen any reason to abandon it. That it must be modified to meet conditions that differ in each case is true, but the fact remains that this is the simplest and sanest of the endless treatments dignified by the name of an author, and as outlined for our nursing staff, which changes every month, we have no trouble in carrying it out.

Repeatedly patients come to us in whom ulcer has been diagnosed from typical symptoms and we obtain a history of constant use of soda bicarbonate or calcined magnesia, or both after meals, because they have learned to know that they might thereby avoid the pain. The habit is pernicious, for pain is an excellent warning that an ulcer is active and that a dietary regime is in order. Morphine in appendicitis is the only more acutely dangerous therapy that occurs to me, and woe be to the doctor who obscures his case by unwise use of that drug. The well-treated ulcer case is a well-trained dietitian, and if he is wise he will live within the confines of what he can eat without pain. The entire absence of pain in a small percentage of cases is well known, and the shock of perforation has been the initial symptom of ulcer in some cases.

A word will suffice for the von Leube dietary regime. No one uses nutrient enemas any longer in this condition, and there seems no reason for the preliminary two or three days' rest of the stomach. An enema frequently sets up marked peristalsis, very little is really absorbed, and it is a poor and difficult practice at best.

Dr. F. C. Shattuck of Boston has discussed the opposite side of this question, and just before the work of Lenhartz was published Shattuck advocated the three or four days of starvation and recounted an occasional case in which rectal feeding could be carried on satisfactorily. He was himself a sufferer from ulcer and had tried this regime with success, fasting thirteen days. He abandoned rectal feeding, however, on account of the discomfort.

The best argument for preliminary rest of the stomach is the fact that, after gastroenterostomy for ulcer, this is the rule. Nothing is given to neutralize any possible acid secretion, and while regurgitated bile may accomplish this, the fact is that there is a normal tendency of wounds in the gastrointestinal wall to heal even under adverse

conditions, and the therapeutic ideal should aim to make conditions as little adverse as possible.

Conheim advocates olive oil for relief of pain, but I have had no experience with the use of it.

It would be very satisfactory to know early in our treatment all that the X-ray and stomach tube could tell us of motor function, defective outlines, and altered chemistry, but cases with recent bleeding should not be subjected to either form of examination if there has been severe hemorrhage within a week, or while there is even very slight hemorrhage. The contribution of the roentgenologist to our understanding of what we have to deal with is of immeasurable value, and as an acid to interpretations of progress in therapy it is most satisfactory. In addition to locating the site of ulcer in many cases, he gives us a good idea of motor function, the effect of pylorus spasm if present, and a great deal of light on the influence of inflammatory processes in gall-bladder ducts and liver. We have learned to distinguish the types of duodenal bulb deformities and what they mean, the behavior of the antrum in ulcer of the duodenum and in gall-bladder disease, and the influences of different processes on the peristaltic waves of the stomach. So common are the complications of ulcer that it is important to clear up all these conditions. Two cases now under treatment will illustrate this.

G. G., age forty-five, has had pain localized in the epigastrium one and one-half hours after eating for one year, during which there have been intervals without pain. No nausea or vomiting. Pain relieved promptly by food. No occult blood in stool. X-ray study showed normal emptying time, test meal emptied out in less than half an hour. At rest in bed on Lenhartz's diet, pain nearly entirely relieved in three days. Test meal, removed in twenty-five minutes, gave low normal total acidity. Nothing recurred in two attempts made in one hour and recovered again in forty minutes after test meals. When extra eggs were added to diet, pain began again, and on the twelfth day patient became slightly jaundiced and test meal showed hyperacidity and retention of some of the prunes eaten at 10 p. m. the night before. The roentgenologist was doubtful of ulcer and considered the case cholecystitis when first examined, and on rechecking changed his interpretation to ulcer with adhesions to gall-bladder. When the gall-bladder is quiet the ulcer condition makes excessively rapid emptying the rule. When the gall-bladder is acting badly there is pylorospasm and six-hour retention.

The next case illustrates the condition holding in uncomplicated ulcer when the ulcer is either near the pylorus, or causing acute trouble.

A. E. B., age thirty-eight. Local pain two hours p. c., nausea, drooling, three years' duration. Numerous attacks, hyperacidity, occult blood on milk diet, pain relieved by soda. X-ray reports: marginal pylorus ulcer; 50 per cent six-hour retention. Lenhartz's regime begun at once. Recheck of emptying time in twelve days, with normal finding.

We have had so many such results that we are slow to consider a large retention as necessarily indicative of permanently narrowed pylorus, even when the stomach seems large and the ulcer symptoms have persisted long enough to suggest considerable induration and a large stomach points to dilation. A trial of diet should always be made until it can be shown that the retention does not abate. The effect of gastric ulcers 8 or 10 cm. from the pylorus in stopping peristaltic waves and causing six-hour retention is well known, and the danger of producing very bad retention has been illustrated in one of our cases where a small perforating ulcer was excised, and no other pathology being present, the stomach very little interfered with, no posterior gastro-enterostomy was done. In twelve days following the operation less and less food passed the pylorus, and only by twice daily lavage was the stomach kept in good condition. Barium meal pictures and screening marked a block in line with the operative incision and forced a gastro-enterostomy. The case is mentioned to illustrate a type of retention and a difficulty in handling cases unless both surgeon and physician work together.

The treatment of hemorrhage should always begin medically because a very severe hemorrhage leaves no time and most difficult conditions for surgery, and with absolute rest most hemorrhages cease. We have had no case in my eighteen years' service, when one of my cases had to be operated on for control of hemorrhage. Several times very severe hemorrhages have been controlled by rapid lavage with ice water as suggested by Ewald, and once, after several days of vomiting of foul-smelling, partly digested blood in a private case of Dr. Coffey, I washed out an enormous amount of similar material with ice water and then poured in an ounce of adrenalin in four ounces of tap water, turning the patient on his right side and elevating the foot of the bed. After a few minutes this was washed out. A Lenhartz regime was instituted and several weeks later Dr. Coffey removed an enormously thick-rimmed penetrating ulcer of the lesser curvature. Einhorn has suggested the use of adrenalin in 1 cc. doses by mouth and hyperdermically in 1-2000 strength. The use, through tube, of enough adrenalin after cleansing the stomach would seem more reasonable, and certainly was successful in the most serious case in my whole experience.

The occurrence of blood in vomitus or stool in an unstudied case offers too poor a chance of relief by surgery which should be held in reserve for trial in event of failure from other methods to control bleeding. In the interval much light on the cause of hemorrhage may be forthcoming. Statistics show that hemorrhage occurs about equally from duodenal and gastric ulcers and four times more commonly than from cirrhosis of the liver, and five times more commonly than from the unknown causes. That it may occur from acute and chronic appendix conditions was called attention to by Moynihan fifteen years ago, when he reported twelve cases, in one of which several pints of blood were lost. All had the pain symptoms of gastric ulcer and were so regarded by him before operation.

One striking case of this kind occurred in my hands. In October, '09, Mrs. E. F. B., age twenty-six, was having her third attack of more or less constant pain, worse immediately after eating for two hours and localized just below the sternum. Nausea was present, but not vomiting. She had

had two serious attacks previously and several mild ones. Both Boas and Rosenheim had seen her in attacks while she was in Germany, and regarded her as having gastric ulcer and so treated her. Boas thought she also had gall-stones. She had vomited blood on several occasions in earlier attacks, and in the present attack there was constantly occult blood in the stools. On Lenhartz's regime she improved, but the pain was not entirely controlled. Nervous disturbances seemed to aggravate it. In the third week, while still in bed, she had an acute attack of appendicitis with a temperature of 102.5. This subsided and several weeks later Dr. Charles G. Levison removed her appendix and severed extensive adhesions and thoroughly explored her stomach and found no ulcer. An enlarged and slightly calcareous gland near the appendix was removed also. When last seen in 1913 she had had no return of her ulcer symptoms.

In cases of continued bleeding where operative risk is poor a transfusion is in order, and this alone may stop the bleeding. At least it will assist in tiding the patient over the surgical intervention. In the meantime the Lenhartz's diet is continued unless the hemorrhage is quite severe, in which case it is interrupted twenty-four hours.

SUMMARY.

Our regime in all cases where the careful history and physical examination point to ulcer and in which no recent bleeding has occurred is:

Confine patient to bed. Give four prunes at 10 p. m. Test meal at 7 a. m., removed at 8.

Lenhartz's diet, bowels moved by enema every other day.

Record occurrence and duration of pain and burning.

Gastro-intestinal study second day, including gall-bladder pictures.

First milk stool examined for occult blood and everyone thereafter, until it is no longer found.

Consideration of complications suspected in cases where pain continues at all after the second day following X-ray study.

Further study of gastric secretion if no complications are found, and use of alkali while diet is being modified *if burning sensation occurs.* Starch food, especially rice, as pointed out by Stone of Pasadena, and meat because it stimulates acidity, are the common offenders.

If symptoms subside at once and do not recur at all as is our experience in the vast majority of uncomplicated cases, surgery is not considered.

If the emptying time is delayed and a recheck in twelve days shows it to be still present, the case is turned over to the surgeon.

If a medically treated case re-enters the hospital with a return of his symptoms, he is questioned closely as to his habits and dietary regime. If found to have been constantly careless his only chance is surgery. If careful, and still the trouble has recurred, surgery seems to be indicated. The worse the conditions the clearer the surgical indications and the better the surgical results. The extreme conservatism of the Southern Pacific Hospital surgeons gives them the difficult cases in which indications for operation are plain, while the success of the medical regime is marked by the very few cases who ever return.

On discharge a diet card is given each patient. This is an arrangement of foods in the order of their digestibility, and is adapted from a scheme gotten up by Dr. D'Arcy Power.

Southern Pacific Company
Hospital Department—Pacific System
Directions for Diet

Eat slowly. Never swallow coarse food until it is chewed soft. Never swallow mush without masticating it and mixing it with the saliva. Avoid very hot and very cold drinks. Do not do heavy exercise after eating. Do not smoke. Do not wash down your food. Do not eat heartily when very tired. Fatigue is often mistaken for hunger.

You May Eat—Bread one day old—toast; crackers. zwieback; dry breakfast foods; soft-boiled, poached or scrambled eggs—omelet plain; macaroni, spaghetti, or other Italian pastes with tomatoes or a little grated cheese; boiled rice; plain soups; vegetable and milk soups; most white fish; plain roast or boiled beef, mutton, veal, chicken, turkey, game (no stuffing); asparagus, spinach, summer squash, string beans, green peas, boiled celery, kale; stewed

LENHARTZ'S DIET

Day	Calories	Eggs	MILK	MILK SUGAR	SCRAPED BEEF	BOILED RICE	ZWIEBACK	BUTTER	CHICKEN
1	280	Raw 2	100 cc. (3⅓ oz.)						
2	470	Raw 3	200 cc. (6⅔ oz.)						
3	637	Raw 4	300 cc. (10 oz.)	20 gm. (5 dr.)					
4	777	Raw 5	400 cc. (13⅓ oz.)	20 gm. (5 dr.)					
5	966	Raw 6	500 cc. (16⅔ oz.)	30 gm. (1 oz.)					
6	1135	Raw 7	600 cc. (20 oz.)	30 gm. (1 oz.)	36 gm. (9 dr.)				
7	1580	Raw 4 Soft 4	700 cc. (23⅓ oz.)	40 gm. (1⅓ oz.)	70 gm. (2⅓ oz.)	100 gm. (3⅓ oz.)			
8	1720	Raw 4 Soft 4	800 cc. (26⅔ oz.)	40 gm. (1⅓ oz.)	70 gm. (2⅓ oz.)	100 gm. (3⅓ oz.)	20 gm. (⅔ oz.)		
9	2138	Raw 4 Soft 4	900 cc. (30 oz.)	40 gm. (1⅓ oz.)	70 gm. (2⅓ oz.)	200 gm. (6⅔ oz.)	40 gm. (1⅓ oz.) or toast 20 gm.		
10	2478	Raw 4 Soft 4	1000 cc. (33⅓ oz.)	40 gm. (1⅓ oz.)	70 gm. (2⅓ oz.)	200 gm. (6⅔ oz.)	40 gm. (1⅓ oz.) or toast 20 gm.	20 gm. (⅔ oz.)	50 gm. (1⅔ oz.)
11	2941	Raw 4 Soft 4	1000 cc. (33⅓ oz.)	40 gm. (1⅓ oz.)	70 gm. (2⅓ oz.)	300 gm. (10 oz.)	60 gm. (2 oz.)	40 gm. (1⅓ oz.)	50 gm. (1⅔ oz.)
12	2941	Raw 4 Soft 4	1000 cc. (33⅓ oz.)	40 gm. (1⅓ oz.)	70 gm. (2⅓ oz.)	300 gm. (10 oz.)	60 gm. (2 oz.)	40 gm. (1⅓ oz.)	50 gm. (1⅔ oz.)
13	3007	Raw 4 Soft 4	1000 cc. (33⅓ oz.)	40 gm. (1⅓ oz.)	70 gm. (2⅓ oz.)	300 gm. (10 oz.)	80 gm. (2⅔ oz.)	40 gm. (1⅓ oz.)	50 gm. (1⅔ oz.)
14	3007	Same as thirteenth day							

peaches, plums, apricots, apples, pears, blackberries if seedless; milk puddings, tapioca, rice, bread, cornstarch, jellies, custard; cocoa, weak black tea, aerated waters.

Doubtful — Not Much at One Time — Mushes; sweet cakes; fried eggs; ham, bacon (if taken they are better broiled to a crisp); sardines; herrings; oysters; pork; duck; cheese; tomatoes, beets, potatoes, carrots, parsnips, egg and oyster plants, mushrooms; strawberries, raspberries, bananas; dumplings; nuts never unless carefully masticated; weak coffee, one cup daily.

You Must Not Eat—Hotcakes, pancakes, muffins; fruit cake; hard-boiled eggs; rich soups, chowder; salmon, lobster, crab, shrimps, smoked and salted fish; hashes; sausage; fried, greasy or recooked; meats, corn beef or other cured meats; onions, cabbage, turnips, cauliflower, beans, corn; salads; oranges, lemons, melons; pastry made of puff paste; Christmas pudding; mince pie; strong coffee or tea.

UNUSUAL MALIGNANT "MIXED" TUMOR (ADENO-SARCOMA) OF THE KIDNEY IN A YOUNG CHILD *

By A. J. HOOD, M. D., and HENRY ALBERT, M. D., Reno, Nevada.

This report of a case of malignant kidney tumor in an infant is offered because of the rarity of the disease and the paucity of literature on the subject. This patient has special interest because the child came under observation before any signs or symptoms of the tumor developed, and hence the rapidity and course of the growth could be observed. It also admonishes us to ever be on the alert to detect this condition, coming on as it does without any or very little pain and without any obvious symptoms until it can be definitely palpated, or until it is too late to offer the operative hope that early diagnosis and operation would afford.

Clinical Record—A. J. H., a girl two and a half years old, with a normal birth record and a practically normal infancy record until the present illness. We were called to see the child on May 10, 1922. There was a history of the child having pulled a larger child over on top of her, the weight of the child falling on her abdomen, and at the same time she struck her head upon the floor. This was followed by complaint of some pain in the abdomen, and vomiting was persistent. There was no evidence of abnormal condition in the abdomen, and we concluded that the child was suffering from the effects of the shock and the injury to the head. The child was apparently well in three days, and we did not see her again until July 10, two months after the first visit. The mother stated that the child had occasionally complained of slight pains in the abdomen in the interim between our visits. She had not interpreted the symptoms as of sufficient importance to ask for the services of a physician. A few days before our second visit the mother had noticed a swelling in the right lower abdomen, her attention having been called to it because the child had been kicked in the stomach by another child, and had complained of slight pain. The bowels had functioned properly and the child had been apparently well, with the exception of the complaint of the vague pains in the lower abdomen. We kept her under observation for about a week. She complained of but little pain and her bowel movements were easy. On one occasion the mother noticed a little blood in the commode. The child had a bowel movement at the same time, and the mother did not know the source of the blood. The urine was normal. The last three days the child began to run an afternoon fever. During the week she failed very rapidly, becoming haggard and emaciated. In the space of the week the abdominal mass grew past the umbilical line and downward into the pelvis, the increase in size being at least 10 per cent. Physical examination revealed the liver pushed up into the fifth intercostal space. The lungs were negative. Caput meduse well marked, the engorgement of the veins extending all over the abdomen. There were two well-defined areas of brownish discoloration similar to that of Addison's disease, and of about the size of a dime, on the skin of the abdomen. The mass was palpable in the right lower abdomen as a hard, smooth, and slightly movable tumor extending over one and a half inches to the left of the umbilicus and down into the pelvis, and posteriorly throughout the entire right lumbar region. Above, a small margin could be detected between the superior pole of the mass and the liver. Percussion confirmed palpation, as to the extent of the mass. Over the lower portion of the mass, crepitation significant of air in the intestines attached to the mass, was detected. No ascites was noted and the superficial glands not palpable. The left side was negative. The urine was negative, although hematuria may have been present at one time. Blood examination was also negative. Neither X-ray examination nor the phenolsulphonephthalein test were made.

Operation (by A. J. Hood, assisted by Vinton A. Muller)—On opening the right peritoneal cavity through a right rectus incision, the mass was clearly exposed below. Several small metastases were seen in adjacent loops of intestine. A loop of the ileum was incorporated in the mass, and required resection to remove it. The mass was easily freed down to the kidney pedicle, which was clamped, and the tumor and kidney removed en masse. Great care was used to control hemorrhage. The condition of the child was too poor to permit proper care of the raw peritoneal edges. Wound closed. The child died on the third day following the operation. There was no autopsy.

Gross Pathology—The mass consisting of tumor and kidney measured 10 x 12 x 13 centimeters, and weighed 1750 grams (three and one-half pounds). The kidney, although free from tumor substance, was, nevertheless, flattened by the pressure of the rapidly growing neoplasm. The kidney measured 2 x 5 x 9 centimeters and presented evidence of marked fetal lobulation, and slight hydronephrosis. No suprarenal was found in connection with the removed mass.

The tumor was rather spherical in shape, and slightly lobulated. The surface contour was in most places rather smooth, indicating the presence of a fairly well-defined capsule. In other places the

* Read before the Washoe County (Nevada) Medical Society, March 13, 1923.

surface was rather rough, due to torn shreds of connective tissue. This occurred where the tumor was adherent to the bowel. The tumor was soft in consistency. The cut surface presented a rather mottled appearance, due to the light pink color of the tumor substance, bright red areas of hemorrhage and grayish areas of necrosis. At one place the necrosis had led to a cyst, which measured two centimeters in diameter. The tumor substance was very friable. It readily gave way under slight pressure between the thumb and finger.

Microscopic Pathology—Sections were made from various portions of the tumor. All presented areas of round cells (sarcomatous portion) containing in its substance a number of sections of tubules lined by cuboidal epithelial cells (adenomatous portion). These areas were separated by rather loose connective tissue. In some places there were areas of necrosis; in others, hemorrhage. Pathological diagnosis. Adeno-sarcoma (may also be called malignant "mixed" tumor).

OCCURRENCE OF KIDNEY TUMORS IN CHILDREN

Malignant tumors of the kidney may be sarcomas, carcinomas, hypernephromas, or "mixed" tumors. Mixed tumors occur usually in children from six months to six years of age. Tumors of early life choose the kidney as the second most common site. D'Espine and Piso, in analyzing 339 recorded cases of tumors in children, found that 52 per cent involved the eye and orbital structures, and 20 per cent the kidney. Porter and Carter reviewed the cases of kidney tumors in children, which occurred in the Stanford and California hospitals during the five years prior to 1920, and found that of the eleven cases which occurred, four were sarcomas, three carcinomas, two hypernephromas, and two malignant tumors unclassified.

The origin of "mixed" tumors of the kidney is best explained on the embryological basis. This likewise explains the rather peculiar combination of adenoma and sarcoma such as occurred in our patient.

The cortex of the kidney, the adrenal and the muscles and bones of the back have their origin from the mesothelium, which in turn has its origin from the mesoblast. Mesoblastic tissue is of the connective tissue type. The development of the mesothelium and the further differentiation of the latter into muscle, bone, kidney substance has resulted in the formation of highly specialized and rather easily recognizable types of tissue. A benign tumor of renal tubule structure represents an adenoma. If the cells of the neoplasm take on a somewhat more embryonic type, a carcinoma is produced. If the cell type reverts sufficiently far back in the embryological scale, they will resemble those of the mesoblast, and accordingly represent a sarcoma. If some of the cells of the tumor are but slightly removed from the typical tubular structure of the kidney, and others are of the embryonal mesoblastic type, we get an adeno-sarcoma, the type of tumor represented by our case. Since in our patient the kidney was not involved, and since the presence of tubules excludes its origin from the adrenal, it is assumed that the tumor had its origin in a renal "rest"—a bit of mesothelial tissue, which originally was no doubt intended to be a portion of the kidney proper, but which was separated from the main mass and failed to undergo proper development, but rather assumed an atypical neoplastic growth.

SUMMARY

1. Malignant tumors of the kidney, or kidney region are of rather rare occurrence in children.

2. Many of the kidney tumors of childhood are of the "mixed" type.

3. "Mixed" malignant tumors of the kidney always contain sarcomatous elements.

4. Certain "mixed" tumors contain tubular gland in addition to sarcomatous elements, and hence represent adenosarcomas.

5. Adenosarcomas of the kidney, or kidney region, originate from "rests" of mesothelial tissue of the type originally designed to form typical kidney structure.

6. Adenosarcomas and other "mixed" tumors of the kidney which occur early in life are rapid in growth, produce but little pain and usually terminate fatally. Metastases occur by way of the blood stream.

7. The operative mortality of the tumor is high. Death frequently occurs soon after the operation. Those that survive the operation usually succumb to recurrence of the tumor.

8. An earlier diagnosis and prompt operative removal represent the only hope of saving more of these cases.

DISCUSSION BY DR. WILLIAM OPHULS

The case presented by Drs. Hood and Albert is a characteristic example of an interesting type of malignant tumor, which usually occurs in infants during the first three years of life. They are characterized by their rapid growth to a very large size, their fatal course, and their obscure origin.

The histological structure of the tumor in the above case is comparatively simple, the tumor consisting of a sarcomatous stroma with glandular inclusions. Many of these growths in addition showed islands of cartilage, areas of smooth and striated muscle fibers and other tissues. They are certainly due to some abnormality in the embryonic development. The exact nature of this embryonic disturbance has been much discussed, but no definite conclusion has been reached.

However, it is now fairly generally assumed that, in spite of the great variety of tissues observed, they all may have their origin in the renal blastema. If this is true, some of the cells of the renal blastema must be sometimes misplaced outside of the kidney proper, because it is a well-known fact that these tumors do not always arise within the kidney. This seems to have been the case in the observation described by Drs. Hood and Albert, because it is stated that the kidney was free from tumorous substance, but was flattened out by the pressure of the rapidly growing neoplasm.

Science Advances Slowly—It is characteristic of sincere scientific speculation that it cannot at any given moment be applied generally to public affairs except with the utmost caution and the most copious dilutions of common sense. This is because of the very nature of scientific inquiry, which, even when it does advance, advances by a sort of self-correcting curve that often brings it back almost to the place where it began.—Gilbert K. Chesterton, the Century, May, 1923.

AN HISTOLOGICAL STUDY OF RESULTS OBTAINED THROUGH INSTRUMENTAL TREATMENT OF PYORRHOEA *

By F. V. SIMONTON, University of California

The wide dissemination of information concerning research in focal infections, which has obtained in the last decade, has brought the physician and dentist into close co-operation. A great variety of conditions, from rheumatism to insanity, have been attributed to dental infections by different investigators.

The extremists have no difficulty in disposing of their problems. The radical adopts heroic surgery and the skeptic disregards the teeth entirely. The man who follows the middle path (representative of the larger percentage of the professions) finds it difficult after studying the conflicting reports and reflecting upon the variability of his own experiences, to satisfactorily orient himself on the relationship of teeth to health. Consequently any

FIG. 1

data which may throw additional light on this subject may be of interest to him.

Pyorrhoea is one of the sources of mouth infection. The physician is interested to know the amount and kind of infection in his patient's mouth, the nature of portals of entry and the results that may be obtained through treatment. He is also concerned with the rapidity with which such results, if corrective, can be obtained and with the permanency of them.

This study was pursued in collaboration with W. H. Hanford of Oakland and C. O. Patten and C. Westbay of San Francisco. It was undertaken in an effort to determine whether a regeneration of tissue, lost through pyorrhoea, was possible; and whether, if new tissue were formed, it would be merely scar or a true regeneration of all the structures involved.

Diseased Tissue—Cases were selected from which pyorrhetic tissue might be excised for study of the disease. Radiograms were taken before excising the material en masse, and a very careful record made of the extent of detachments (depth of pockets). Microscopic examination of the section shown in Figure 1 (which includes two adjacent bicuspids, their periodontal membranes, the septal gum and the intervening alveolar process) exhibits the following:

Fig. 2. Septal gum. Note intense inflammation round cell infiltration, edema, hemorrhagic elements, almost complete destruction of epithelium.

FIG. 2

FIG. 7

Fig. 3. Junction of septal gum and tooth. Note inflammation, destruction of epithelium, detachment of membrane from tooth.

Fig 4. Periodontal membrane in the region of the crest of the alveolar process. Note inflammation of membrane, erosion of bone by osteoclasts, osteomyelitis.

Fig. 5. Crest of alveolar septum between the two teeth. Note osteoclastic action on bone and osteomyelitis.

Note—The three following pictures represent fields from a transverse section of a pyorrhetic bicuspid with its circumjacent tissues. Three stages of destruction are evident. Fig. 6 shows partial destruction of alveolar process. Fig. 6A exhibits but one fragment of bone remaining and in Fig. 6B the bone has completely disappeared and the tooth has been eroded even penetrating through the cementum into the dentine.

Treated Tissue—A case was now selected, which radiographically and clinically was very similar to the preceding. That is, a patient was sought presenting two pyorrhetic bicuspids in which the amount of destruction compared as nearly as possible to the case from which the diseased

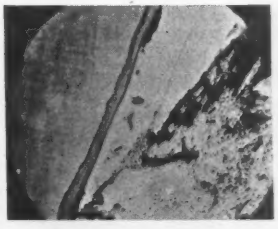


FIG. 3

FIG. 8

FIG. 4

FIG. 9

* Presented before the Marin County Medical and Dental Societies.

tissue was removed. (It was necessary also to find a case in which the removal of the tissue was justified by prosthetic requirements.)

Such a patient being found, a very careful instrumental examination was made. The extent of detachments was recorded on a special chart. Radiograms were taken with an equipment designed

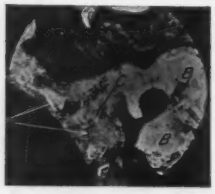


FIG. 6

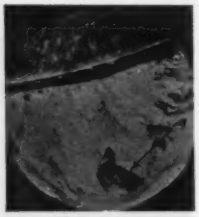


FIG. 6A

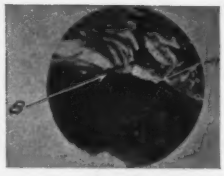
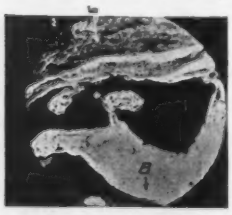


FIG. 6B

to procure the same amount of current, time of exposure, angle, position, etc., at repeated intervals if necessary. Photographs were taken and models prepared. The tissues were then treated (by instrumentation, scaling the roots and mechanical stimulation) for nine months. A new examination and charts were made; new radiograms taken under the same exposure and from same relative position as before. Photographs and models were again prepared. According to this data there was an average reduction in the depth of pockets of about two millimeters, which indicated regeneration and healing. The tissue was now excised and prepared for the microscope. (Contrast Figs. 7, 8, 9 and 10 with Figs. 2, 3, 4 and 5.)

Fig. 7. Shows septal gum. Note lessened inflammation, basement membrane and epithelium intact and complete.

Fig. 8. Shows point of junction of gum and



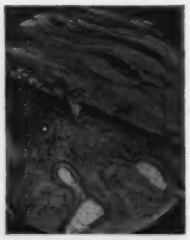


FIG 10

tooth. Note lessened inflammation, new epithelium, reattachment (tear at bottom of sub-gingival sulcus probably artifact due to cutting on microtome. New sections are being prepared for a closer study of this detail).

Fig. 9. Shows periodontal membrane in the region of the crest of the alveolar process. Note general repair of bone, lessening of inflammation, absence of osteomyelitis.

Fig. 10. Shows crest of alveolar septum between the two teeth. Note filling in of bone. Salients of destruction persisting at B. Lessened inflammation.

CONCLUSIONS

As a result of this work we believe that instrumental treatment of pyorrhoea is beneficial, that some regeneration takes place, that the histologic picture of the treated tissue is essentially constructive, whilst that of the diseased tissue is essentially destructive. We hope to determine the amount of regeneration possible by further work; we are also seeking methods for augmenting the repair. From bacteriologic studies in progress, we believe the infection is rapidly and materially diminished by treatment.

The original staff of workers has now been increased to include three physicians, two bacteriologists, one chemist, one biochemist, four dentists and two student assistants. It is organized as the "California Stomotalogical Research Group." A composite study of pyorrhoea, and allied problems, including nutritional phases, is being made.

The work is being carried on at San Quentin Prison, through the support of Warden James A. Johnston and with the co-operation of Dr. L. L. Stanley, resident physician. The services of the members of the group are largely volunteer, some financial support is being received from the California State Dental Association. The work is also being strongly aided by Dean Guy S. Millberry of the University of California Dental College.

FOCAL DENTAL INFECTION

The relation of pyorrhoea or apical abscess to metastatic involvement of the bones or joints is a subject that presents many angles. The more acute the infection; the more virulent the character of the infection, the greater is the probability of migratory infection. The thoughtless extraction of teeth should be discontinued. If benefit is to come from the extraction of teeth or the treatment of pyorrhoea, such treatment must be instituted before structural changes have taken place in bones or joints that have undergone metastatic infection. It is true that eradicating focal infection in the mouth sometimes brings brilliant results. It is equally true that many times the result is more discouraging. However, the removal of infection is always indicated when there is positive indication that it exists and is not a result of guesswork.

In considering the dental side of this question, the age of the patient must be taken into consideration. In the third and fourth decades of life regeneration of bone is by far less than that which may be confidently expected in the second decade, at which period replacement of bone is both rapid and voluminous.

It is true that many teeth that should be extracted are left in place. It is equally true that many needless extractions are being carelessly done.

(First Avenue and Parnassus, San Francisco.)

THE NEUROLOGICAL ASPECTS AND LATE SYMPTOMS OF EPIDEMIC ENCEPHALITIS *

By THOMAS G. INMAN, M. D., San Francisco

When the present epidemic of lethargic encephalitis made its appearance in Europe in the year 1917, the attention of the medical profession was attracted principally to what now may be called the major types of the disease. The general conception of the condition was of an acute illness characterized by weakness, somnolence, fever, and ophthalmoplegia with occasional meningeal irritation, myoclonic movements and radicular pain. With a death rate of from 20 to 30 per cent it seemed at first that this mortality told the story of the seriousness of the disease, and that those who successfully weathered the initial acute period would entirely recover. Never in the history of medical experience have hopes so justly aroused been doomed to greater disappointment. Many patients survived acute attacks of such severity that for weeks death was momentarily expected or after lying for months in a lethargy so profound that they could be aroused only with difficulty. After weeks or months devoted to convalescence and with complete recovery apparently imminent, many of these patients resumed their work only to find that residual symptoms persisted or that new ones arose, causing invalidism in a new form. Moreover, there now appeared types of the disease similar in character to the residual forms of the acute disease, but in which the onset had been either so insidious as to pass unnoticed or in which there could be elicited a history of an attack of dizziness, a few days' illness of unknown nature or of something which passed as influenza.

From pathological evidence, and to some extent from clinical experience, it would seem that in epidemic encephalitis we are dealing with a generalized infection which exerts its greatest influence on the central nervous system. That some toxic factor accompanies the severe infections will not be denied, but an understanding of the clinical symptoms will be obtained from a consideration of the gross and microscopical changes observed in the affected tissues.

With widespread cellular reaction throughout the brain and leptomeninges, with more or less extensive accumulations of cells about the smaller blood vessels and with minute hemorrhages in the brain substance, and upon its surface all varying in degree, both as regards location and with the individual case, it is not to be expected that the disease will be characterized by an orderly array of symptoms whose significance may be easily interpreted at all times. Thus, in one case the leptomeninges may bear the brunt of the attack, in another the roots of the cranial nerves seem to be especially affected or the process may be almost wholly confined to the midbrain and pons. Occasionally, a spinal type is observed in which radicular pain and muscular spasms predominate.

As an illustration of the incidence of certain common symptoms, a group of eighty-seven cases reported by Ferrari may be quoted.

Fever was noted 41 times; somnolence, 29; lethargy, 18; stupor, 13; coma, 9; asthenia, 12; vertigo, 17; headache, 31; strabismus, 10; nystagmus, 10; muscular rigidity, 10; myoclonic movements, 6; ptosis, bilateral, 32; unilateral, 2; facial paralysis, 11.

As previously suggested, the late or chronic forms of epidemic encephalitis are derived from two sources. The first group, and the one most easily recognized, follows the acute stage either immediately or after the lapse of months or years. Careful inquiry, however, into the histories of these recurrent forms will generally disclose the fact that never was there a complete return to the former state of health. There had been a change in the disposition, a tendency to rest more than formerly, excessive somnolence, insomnia, unusual gain in weight, forgetfulness, etc., noted by immediate members of the family or by employers if not by the patients themselves.

It would seem that the greater proportion of the individuals in this group present some of the symptoms characteristic of the so-called Parkinsonian syndrome. There is the mask-like face, the muscular rigidity, occasionally the tremor, the difficulty in swallowing, and the accumulation of saliva in the mouth so characteristic of paralysis agitans. But in addition to these symptoms there may be others left over from the acute stage which will serve to link the two periods together. Radicular pains may persist, somnolence may continue or give way to distressing insomnia, there is increasing muscular weakness and spasticity, eye-muscle paralyses demand frequent change of glasses, vasomotor disturbances are evident, and symptoms centering about the heart and digestive organs testify to the fact that widely separated parts of the central nervous system are still involved.

The second group, which should be designated as the subacute form of epidemic encephalitis, may present considerable difficulty in diagnosis. There may not be any certain, focal signs at first or such local disturbances as occur may be fugitive in nature, disappearing from time to time, so that no suspicion of their real nature may be aroused. Mental depression was the presenting complaint in one such case, and it was not until eye-muscle symptoms, subjective sensations of stiffness of the face muscles, leg pains, and absence of the abdominal reflexes on one side occurred that the actual condition was suspected.

A history of the patient's condition during the months preceding the onset of the present symptoms may be of great importance in arriving at a diagnosis. It may be noted that there had been a brief illness not unlike mild influenza, a gastrointestinal upset of moderate severity, pains in the back and legs, diagnosed as muscular rheumatism, or an abrupt attack of dizziness. One patient stated that he felt as though he had been struck in the stomach and, indeed, had been suspected as having ptomaine poisoning. After some months, during which there appeared radicular pains in the chest and abdomen, marked hypochondriasis with

* Read before the San Francisco County Medical Society, February 13, 1923.

impulsive ideas, tremor in the face and tongue, and insomnia, it became evident that a serious nervous affection lay behind the numerous complaints.

By grouping about some prominent symptom, it has been possible to construct quite a number of clinical syndromes, one author having collected more than twenty types. But it would seem more rational to look upon the disease as a generalized infection, remembering that the presenting symptoms form only the peak which projects above the lowlands, a closer approach and more careful scrutiny bringing the latter into the picture in the shape of minor disturbances which previously had passed unnoticed.

In a disease which may present so much cellular activity within the brain substance, it is probable that in all cases there will be some impediment to the normal flow of blood throughout this organ, with consequent abnormal variations in intracranial pressure. In this manner, parts of the brain less actively involved in the disease process will show, from time to time, disturbances in function. There will be in the great majority of cases, if not in all, a noticeable lowering of the psychological level. It is natural to believe that any frank psychotic symptoms which develop from the disease, per se, will be those characteristic of the toxic-infectious group. Thus, phenomena dependent upon disturbed cerebration will include the delirium, hallucinations, and motor restlessness of the acute stage, while in the subacute variety there may appear hypomania, depression, memory disturbances, slowing of the intellectual processes, marked anxiety, conduct deviations, and the like. There is one peculiar characteristic of the lethargic state which speaks for the limited influence of a toxic factor, and that is the surprisingly abrupt return to full consciousness which frequently occurs spontaneously or as a result of sharp questioning. These periods may be of short duration, the patient quickly lapsing into the former condition.

Much discussion has arisen as to the signification of the frequently noted implication in the disease process of the midbrain and great ganglionic structures of the brain base. Undoubtedly, a majority of all forms show some involvement of these structures. It has been suggested that the organism accountable for the disease enters the cranial cavity by way of the naso-pharynx and that the brain in this vicinity is first affected. Be this as it may, it is a well-recognized fact that disturbances in the nerve supply to the muscles of the eyes and face, and symptoms due to dysfunction of the thalamus, corpus striatum and other parts of the extrapyramidal system are exceedingly frequent. So common are symptoms arising from disturbance of function in this region that, early in the history of the present epidemic, many competent observers stated that, without evidence of eye-muscle disturbance, a positive diagnosis of this disease could not be made. This probably states the case for midbrain involvement a little too positively.

However, from a very definite and frequent attack upon the great ganglia and pontine structures, there has arisen the conception of a moderately stable syndrome, which influences the clinical picture in more than 80 per cent of cases whether arising from an acute or subacute source. To this symptom group, the names Parkinsonian type, hyperkinetic type, bradykinesis, etc., have been given.

It was early pointed out by Edinger that the corpus striatum ruled over that form of muscular action which we call automatic, and that in disease of this structure the ability to perform spontaneous movements was lost. More recently, Ramsey Hunt has further contributed to our knowledge of the physiology of this region, and has shown that when disease affects that portion of the corpus striatum known as the globus pallidus, there is produced a group of symptoms familiar to us as paralysis agitans in which paralysis of automatic associated movements, muscular rigidity, and rhythmical tremor predominate.

While in both the residual and subacute forms of epidemic encephalitis certain elements of the Parkinsonian syndrome frequently occur, it must be acknowledged that rarely, if ever, are evidences of disease in other parts of the brain wanting. The outstanding symptom of the Parkinsonian type is the muscular rigidity. The facial expression is mask-like, the skin flushed, the arms and hands are held in a fixed position, or when moved lack the freedom of spontaneous motion, the gait is more or less spastic. Tremor may or may not be present or may be evident at one time and not at another. As a general rule, it may be stated that the greater the spasticity the less likelihood will there be of an observable tremor. Only rarely will the tremor closely resemble that seen in classical Parkinson's disease. Muscular weakness will be a prominent feature.

Added to this central picture will be found other symptoms which will aid in establishing a diagnosis. Inequality of the pupils is common, and the Argyll-Robertson pupil has been observed. There may be other eye-muscle paralyses. Only occasionally are changes noted in the optic discs, but slight swelling of the nerve head or, more frequently, moderate reddening of the disc may occur at some time in the course of the disease.

While the pyramidal tracts may be involved, it is a singular fact that they escape more frequently than their close proximity to the striatum would seem to warrant. Still, disturbance in these motor structures may be present and will be expressed in greater muscular weakness and spasticity, and the presence of pathological reflexes.

Lower in the brain-stem, symptoms arise according to the part affected. Facial paralysis, deafness and tinnitus, vagus disturbances and hypoglossal paralysis have all been observed.

Peculiarly resistent to both time and treatment are the root-pains emanating from old foci of the disease in the spinal cord or its membranes.

As an aid to diagnosis, it is to be expected that examination of the spinal fluid might be of some assistance. But the results of this procedure are to be accepted only as corroborative evidence, since in some of the quite active cases the fluid may be entirely negative, at least when a single examination is made. When changes are present, increase

in the cell content, up to several hundred per cmm., may be obtained. There is no single type of cell constantly predominating, the increased proportion seeming to favor the lymphocyte. The globulin is not increased in correspondence with the pleocytosis, a phenomenon constituting the so-called cytoglobulinic dissociation, thought to be of special significance in this disease.

The colloidal gold curve, when present, approaches to that seen in the paretic form of cerebro-spinal syphilis, but is to be interpreted only as evidence of an inflammatory reaction within the cerebro-spinal parenchyma. The presence of an increased sugar content in the fluid has been reported.

A further recital of symptoms and findings would be tantamount to naming all the effects which might arise from disturbance in function in any part of the central nervous system, the object of such repetition as has been given being to impress the fact that in epidemic encephalitis we are dealing with a disease, which, up to this time at least, has no pathognomonic symptoms of its own. It may simulate other disturbances in the nervous system and may be imitated by other diseases, it may be recognized at times at a glance, at others, requiring a careful assembling of history, repeated painstaking examinations and long waiting before a diagnosis can be made with certainty.

SURGERY OF THE GALL-BLADDER *

By STERLING BUNNELL, M. D., San Francisco

Note—This article deals with the physiology and etiology of biliary infections. The symptomatology, pathology and surgery will appear in the succeeding number of the Journal.

In recent years our conception of the conditions of the gall-bladder has undergone a material change. Gall-bladder disease was considered to occur after the age of forty years, and we thought of it in terms of the presence or absence of gall stones. The gall-bladder has even been called a profitable rock quarry. We now find that cholecystitis usually starts in the 'teens and constitutes the second most common cause of indigestion, appendicitis being the first. It is true that grossly pathological gall-bladders are usually found in later life, but a careful questioning of these patients will generally reveal a history of recurrent bilious attacks over a period of one to three decades. Gall-stones can be considered as milestones, as they indicate a long pathological journey. They are not the cause of cholecystitis, but constitute an occasional by-product. Formerly gall-bladders were drained, before it was realized that a ten-day drainage cannot cure a deep-rooted catarrh of a mucous membrane. Only the badly diseased gall-bladders were removed. Now mildly infected gall-bladders are removed early, as we know that the infection is deep in the wall. The patient is spared years of ill health. Gall-bladder surgery was formerly twenty years behind the disease.

PHYSIOLOGY

Pressure System — The liver secretes bile at about 300 mm. pressure of water, and if the common duct is so obstructed that the pressure rises above this, the bile of the liver will be absorbed by the lymphatics and pass into the blood stream, and the patient will become jaundiced. The normal pressure of bile in the common duct is from 100 to 150 mm. of water pressure. It is seldom over 300 mm. This pressure is controlled by the tone of the sphincter of Oddi. This sphincter when in extreme contraction can be forced by 600 mm. of water pressure. The pressure in the common duct is influenced greatly by the respiratory movements. Vomiting will suddenly raise it to 1000 mm. This is but momentary, as the sphincter will yield. The gall-bladder has been seen to contract from five to eight times a minute during digestion. It can never fully empty itself. Its musculature is not great, and as its maximum contracting force is only 313 mm. of pressure, when under stimulation by electricity, it is seen that this is practically the pressure of the secretion of bile, so that the gall-bladder has but little function in emptying the ducts. Therefore, the sphincter of Oddi controls the pressure of bile in the ducts. If the gall-bladder be removed the bile-ducts will dilate. If the gall-bladder be atrophied from disease, it is found that in the majority of cases the ducts will be dilated. If, however, we remove the gall-bladder and at the same time the muscle of the sphincter of Oddi, the bile-ducts will not dilate. Therefore, it is probable that the gall-bladder takes up to some degree the fluctuations of pressure in the bile-ducts, due to the contractions of the abdominal muscles. Certain animals, such as the horse, rhinoceros, deer, peccary, pigeon, rat (not the mouse), gopher, and mole have no gall-bladders, and in these animals the bile-ducts are not dilated and there is present a sphincter of Oddi, which is histologically the same as that in the animals which have a gall-bladder. It has been found, however, that in the animals without a gall-bladder the tone of the sphincter of Oddi is less, being less than 30 mm. in these animals and over 100 mm. of water pressure in the animals with a gall-bladder. The bile-secreting force is, however, the same in the animals with or without a gall-bladder.

The Cystic Kink—The cystic duct in man and in most animals forms a sharp letter S kink with the gall-bladder. In man this kink is aided in its obstructive function by the 4-20 leaflets, known as the valves of Heister. The upper two of these leaflets contain muscle fibers and extend two-thirds of the way around the duct. The cystic kink is such an efficient valve-like obstruction that either the gall-bladder or the common duct can be over-distended to bursting, without affecting the pressure in the other. This can be readily demonstrated at operation, where we find the gall-bladder non-compressible. If, though, we give it a slight longitudinal pull the gall-bladder readily empties. It was thought that bile from the gall-bladder was obtained in the Lyon's test, but Jacobson and Gydeson have proved it to be otherwise. They placed a bulb connected to a manometer in the gall-bladder and one in the common duct, and introduced substances into the duodenum. It was found

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that magnesium sulphate in the duodenum produced a flow of thin light duct bile through the ampulla of Vater, and caused a drop in the pressure of the common duct of about one-third, but no change in the pressure in the gall-bladder. Peptone did the same, but to a lesser degree. Four per cent hydrochloric acid caused at first an increase in the pressure of the common duct and then a prolonged decrease, but did not alter the pressure in the gall-bladder. Alkalies caused a prolonged increase in the common duct, but no change in the pressure of the gall-bladder. Magnesium sulphate was introduced into the duodenum after a colored dye had been injected into the gall-bladder, but none of the dye appeared at the ampulla of Vater. In the Lyon's test, then, we obtain common duct bile, and the gall-bladder is not affected. Clinically, the test has been proven unreliable, as shown by the extensive work of Cutler and Newton of Boston.

Let us think of the cystic kink as an obstructing valve between the gall-bladder and the duct system, which opens and shuts with the slight longitudinal motion of the gall-bladder, as would be imparted to it by the movements of respiration. This is surely a nice adjustment of nature, and it is probable that slight changes in the degree of formation of the kink, or of congestion of the mucous membrane, can too readily cause the kink to overact and so obstruct the gall-bladder. When an organ is obstructed it is an easy prey for bacteria. In cholecystitis is it not possible that an overacting kink may be primary and the bacteria secondary? Roentgenologists (George and Burnham) have found that when a patient with cholecystitis is placed in the right oblique prone position, the shadow by the X-ray shows an indentation by the gall-bladder of the duodenum. This has proved to be a reliable point in the diagnosis of cholecystitis and it is due to the tenseness of the gall-bladder, caused by the overaction of the kink. Does the infection cause the kink to overact, or are people with an exaggerated kink born to have gall-bladder trouble? Is it possible that indigestion disturbances can result from simply an overaction of the kink, without the factor of infection?

Storage Function of the Gall-Bladder — The gall-bladder seems unfitted for a simple storage function, as it contains from but an ounce to an ounce and a half of bile, and as over a pint and a half of bile is secreted in twenty-four hours, this is but an hour's secretion of bile. It holds but 5 per cent of the twenty-four hour's secretion, and when not distended about 1 per cent. Its musculature is quite inadequate for the function of a storage bladder, and its lining is so specialized that it is apparent that simple storage is not the function. The mucous membrane is built up into high delicate folds that give a tremendous surface to the gall-bladder. There must be a reason for this.

Function of Concentration—Common duct bile is quite different from bile obtained from the gall-bladder. The latter is darker, thicker, contains more mucous and bile salts, and the specific gravity is greater. It is found to be from six to ten times more concentrated than common duct bile. If the common duct be tied off above the cystic duct, the bile obtained from the duct above the ligature will be found to be thin and to contain no pigments. If, however, the common duct be tied below the cystic duct, it will found later to contain thick, syrupy, tarry bile. The gall-bladder has concentrated it and by absorbing water has relieved the secreting force of the liver from excess of pressure. If Dakin's solution be injected into the blood stream, it will be found that at autopsy the gall-bladder stands out in contrast to the other organs, red and inflamed. This again suggests the concentrating action of the gall-bladder.

If a catheter be introduced through the ampulla of Vater up into the gall-bladder and potassium-sulpho-cyanid be introduced through it into the gall-bladder, it will be found that when ferric chloride is applied to the surrounding tissues the Prussian blue color will appear in the lymphatics and lymph glands that drain from the gall-bladder. Besides this ability to absorb water and inorganic salts, it is probable that the gall-bladder absorbs cholesterol, as it was found that in rabbits from which the gall-bladder had been removed the amount of cholesterol in their blood was one-third less than normally.

Just as an automobile has a condenser attached to the radiator, in order to conserve its water, so the gall-bladder returns to the blood stream water, inorganic salts and cholesterol that have been secreted by the liver. Such a function, however, seems unnecessary when we consider that the colon has a far greater action of absorption, and so can easily compensate for the loss of this function in the gall-bladder. Concentration of the bile must favor the formation of stones. If the gall-bladder concentrates the bile ten times it is possible for it, even with its small size, to act as a storage organ.

Through the action of a hormone associated with the production of acid chyme, the height of the flow of bile comes as the chyme leaves the stomach. There is, however, a lesser continuous secretion of bile between meals, much of which can be taken up by the gall-bladder and there reduced ten times in volume and stored. Of the various functions of the gall-bladder, such as regulator of fluctuations of duct pressure, storing of bile, condensing of bile, and the production of mucous, all can be readily compensated for after a cholecystectomy by the other organs.

ETIOLOGY

Clinically, cholecystitis has been found to follow infection of organs of the portal system, such as typhoid, appendicitis, ulcer, megacolon, colitis, and suppurating hemorrhoids. With it is found in most cases hepatitis, not only generalized through the liver, but developed to a greater degree in the neighborhood of the gall-bladder. Pancreatitis is found associated with cholecystitis and choledochitis.

Theories of Manner of Infection—Considering that gall-bladder infections usually follow infections of those organs that drain into one certain

vein—the portal—and that the blood of this vein has no direct course to the gall-bladder, it seems hardly likely that embolic infection of the gall-bladder takes place from the general blood stream, as in the Rosenow theory. It is more plausible that the infection carried to the liver by the portal blood reaches the gall-bladder by some anatomically more direct route.

It is well established that the liver receives bacteria from the portal system, and either kills or attenuates them. Sections from an area of hepatitis show periportal inflammation, in that about the portal radicals we find round cell infiltration, lymphocytosis, leukocytosis, vacuolation and atrophy of liver cells and deposits of pigment. Pieces of liver, taken from cases of acute appendicitis, have been examined histologically and have been found to show acute periportal inflammation.

It is not probable that bacteria infect the gall-bladder by the way of the ducts from the duodenum. The duodenum can be filled to bursting without injecting the ducts. Infections ascending against an outward flow are uncommon in other parts of the body. It may be so that carmine particles introduced into the rectum were recovered from a biliary fistula, but in this case the normal direction of the flow was reversed. Graham and Peterman failed to infect the gall-bladder by merely infecting the bile within it. They concluded that, in order to do this, one of four other factors must be present; namely, stoppage of the cystic artery, stoppage of the cystic duct, injury of the wall of the gall-bladder or foreign body in the gall-bladder.

Granting that the liver excretes live bacteria in the bile and that these reach the lumen of the gall-bladder, we know that infection by this means requires some other aiding factor. The cystic kink may help. Many infected gall-bladders contain no foreign bodies, such as stones.

Recent experiments point to the lymphatic vessels as the carriers of infection from the liver to the wall of the gall-bladder. In cholecystitis frequently no bacteria can be found in the bile. In the gall-stones and especially deep in the wall of the gall-bladder, can be found usually the streptococcus and sometimes the colon or typhoid bacilli. Histologically, signs of inflammation are seen not so much in the mucous membrane as in the deeper coats, where the embolic infections have taken place. The wall of the gall-bladder is rich in lymphatics, which run to the liver and down along the ducts to the head of the pancreas, furnishing ample passageway for infection to follow. In over 80 per cent of infected gall-bladders we find a gross hepatitis in the immediate neighborhood of the gall-bladder and often extending two inches from it, indicating a to-and-fro infection between the gall-bladder and the liver. Prussion blue injected into the portal vein will be found to inject the lymphatics of the gall-bladder. Prussian blue injected into the wall of the gall-bladder injects the lymphatics running from it into the liver and running from the gall-bladder down along the gall-ducts and into the head of the pancreas. Experimentally, staphylococcus was injected into the portal vein. It was found that the wall of the gall-bladder was infected deeply and not into the mucous membrane and that there also resulted a hepatitis, a choledochitis, and a pancreatitis. The same bacteria were identified in these organs.

The gall-bladder is often a part of a generalized infection, such as appendicitis and duodenal ulcer. Ten per cent of duodenal ulcers are accompanied by cholecystitis. Simultaneous perforations of the appendix and the gall-bladder have frequently been encountered. Chronic pancreatitis is generally localized in the head of the pancreas, which is the part of the pancreas most connected by lymphatics with the gall-bladder.

From the present data, it is reasonable to believe that bacteria coming through the portal vein to the liver pass by the lymphatics into the gall-bladder wall, resulting in cholecystitis. From here they reinfect the liver, causing a local hepatitis, and by lymphatics also pass down the bile-ducts, causing choledochitis, and to the head of the pancreas, causing pancreatitis. A vicious circle is thus formed, which passes the infection back and forth between these organs. If the gall-bladder be removed, the chronic pancreatitis generally clears.

Pancreatic Aspect of the Sphincter of Oddi—It is probable that pancreatitis sometimes develops from a regurgitation of infected bile up the pancreatic duct, due to obstruction at the sphincter of Oddi. In such cases ball-valve obstruction at the ampulla of Vater has often been reported. From many dissections it was found that in only 4.5 per cent of cadavers is the anatomical arrangement of the pancreatic and bile-ducts so that an obstruction at the sphincter of Oddi can cause a regurgitation into the pancreas. Yet we find chronic pancreatitis associated with 7 per cent of infected gall-bladders and 28 per cent of infected common ducts.

In the goat, an animal in which the pancreatic duct joins the common bile-duct above the ampulla of Vater, Mann tied the common duct below the entrance of the pancreatic duct. In these animals, though all showed slight pancreatitis, none showed acute hemorrhagic pancreatitis. When bile was injected with a syringe up the pancreatic duct acute hemorrhagic pancreatitis developed, but in this case pressure was used, which must have resulted in trauma to the pancreas. When the same experiment was repeated, using instead of the syringe method a pressure of 500 mm. of water, no acute hemorrhagic pancreatitis developed. In these experiments normal bile was used. Infected bile, however, acts differently. When this is injected up the pancreatic duct, even under normal pressure, acute hemorrhagic pancreatitis develops.

It, therefore, would seem that the advisable treatment for acute hemorrhagic pancreatitis is cholecystectomy, drainage of the bile-ducts, and an evulsion of the sphincter of Oddi. This latter has been found to give the most lasting reduction in the pressure of the common duct, and more so than does merely cutting the sphincter.

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CARDIAC DECOMPENSATION DURING PREGNANCY AND LABOR *

By K. L. SCHAUPP, M. D., San Francsco

The frequency with which cardiac disease has been diagnosed during pregnancy and the infrequency of serious decompensation at the time of labor were the factors stimulating this paper. It is purely a preliminary report based upon our work at the Women's Clinic of the Stanford Medical School during the past three years.

In obstetrical examinations, a thorough survey of the heart and circulation is just as important as pelvimetry. It is necessary not only to know whether or not there is cardiac enlargement or whether there is insufficiency or stenosis of any of the valves, but a very clear picture must be presented as to what may be expected of any individual heart if put through a period of stress.

Heart-murmurs are very common, as anyone knows who does many routine examinations. Especially common is a transient murmur which appears at the base over the pulmonic area, but from which we have never yet found symptoms. From this type on there are many kinds of murmurs and many degrees of each type.

It is fortunate that even when a diagnosis of a definite organic lesion has been made, we do not often find the heart showing signs of decompensation, but we must ever be on the alert to the knowledge that it may occur at any time, and we must not be taken by surprise.

The history of previous cardiac disease with decompensation during pregnancy and labor is naturally important, but must not be taken as positive evidence that it is going to occur again. Nor is the fact that the patient with a well-marked lesion but who has never had a break in compensation, any assurance that such a break may not appear at this time. We find that there is no regularity with which we can prognosticate the probable course of events without careful intensive study. Some patients have marked symptoms in one pregnancy and in several subsequent ones seem perfectly normal. In one case of this series the patient had had mild signs of decompensation ever since an attack of inflammatory rheumatism at ten years of age, and when seen early in her first pregnancy showed such definite signs of danger that termination of the pregnancy was considered. She improved, however, as the pregnancy progressed and at labor was perfectly normal and, except for the presence of a systolic murmur and slight enlargement of the heart, one would not have known that there had ever been a lesion.

Another patient had always been well until her first pregnancy, when she had a severe decompensation. Following this there were three normal pregnancies without symptoms. With the fifth she came under our care with a marked decompensation and active endocarditis. This woman delivered spontaneously, but sank rapidly and died on the fourth day.

The heart that is not compensating presents an individual problem during pregnancy and labor. Under normal conditions of health it is resilient and adapts itself quickly to varying demands. The types of lesions met with are the same as at any other time and the resultant symptoms are naturally also the same, but are accentuated by the added work that is thrown upon the circulatory system during this period. Nausea, poor nutrition, and the elimination of toxins or waste products of the embryo throw an added burden on the heart early in pregnancy. Later, the increased vascularization tortuosity of vessels and the mechanical embarrassment of the growing uterus increase the load. During labor the actual work performed by voluntary and involuntary effort, the increase in blood pressure and accelerated pulse rate cause the greatest strain. Lastly, the sudden emptying of the uterus at the end of the second and third stages may, by splanchnic dilatation, cause shock and dilatation even after several hours.

The necessity of close supervision to forecast the probable effect of pregnancy and labor upon the cardiac pathology is evident. All patients who have been found to have a heart lesion need to be closely watched. This means careful questioning for signs of early decompensation, frequent reading of the blood pressure, and careful examinations of the heart, as well as urine examinations.

Where signs of the break appear, medical advice should be asked as soon as possible and treatment begun. The treatment naturally is the same as for the same type of lesion uncomplicated by pregnancy. Where consultation is called there should be the utmost co-operation to determine the effect of each condition upon the other. Happily, where this co-operation exists we can feel reasonably safe, for the approach of the point of danger will have been recognized and the pregnancy terminated before the break.

Here we must make a careful survey of the apparent cardiac reserve and balance it against the remaining work that we know must inevitably be thrown upon the heart. Should there be no improvement after a reasonable period of intensive treatment, termination is indicated and the sooner it is done, the better the prognosis. If, however, the patient is in a grave condition when first seen, it is better to be conservative and try to gain a little ground before attempting any operative procedure. There are times when the decompensation is so grave that we are sure that even a small burden added to the already heavy load will cause fatal termination.

In 1395 pregnant patients seen during the last three years in the Stanford Women's Clinic and the Stanford Obstetrical service at the San Francisco Hospital, cardiac disease, other than functional murmurs, was diagnosed thirty-eight times. Mitral insufficiency was most common, occurring 18 times; mitral insufficiency complicated with

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stenosis was observed 6 times; endocarditis, 5; mitral stenosis, 3; myocarditis, 2; aortic stenosis, 2; aortic insufficiency and aortic stenosis with insufficiency, each once. Myocarditis and endocarditis presented the most serious complication. Both patients suffering from myocarditis showed a marked break, and both were delivered operatively. Of the five patients with active endocarditis, all had symptoms and four were terminated operatively, while the only one allowed to go through spontaneous labor was the one who subsequently died. Of three patients with mitral stenosis, two had symptoms and were assisted at labor. In mitral insufficiency, the most common lesion, symptoms appeared in eleven cases, but they were in most part mild, only four coming to operation. Of the aortic lesions, none turned out to be serious.

Of the 38 patients with decompensation, 23 had albuminuria and 4 had casts, 19 had dyspnoea, 17 palpitation, 14 cough, 14 edema, 13 pain, and 4 had irregularity of pulse. While dyspnoea was the most common symptom, it was usually present in a moderate degree and with palpitation and slight edema was often the only sign of decompensation. In the more serious cases, however, cough and pre-cordial pain were the most constant symptoms and were often very difficult to control. It was in the cases of coughing and pain that we found the gravest decompensation, and here interference was more often necessary. Irregularity of the pulse, while not frequent, was almost always associated with a serious lesion. The time of appearance of symptoms varied, but in most of the twenty-four that occurred ante-partum they began after the sixth month, and of these the majority appeared during the last six weeks. In one, symptoms occurred almost with conception in three different pregnancies, and with each grew worse.

Five patients who were known to have cardiac lesions, but in whom there had been no signs of decompensation, decompensated after labor in varying degrees. One had acute dilatation. There was only one who had marked signs intra-partum, and this was the patient with endocarditis, who died on the fourth day. It is remarkable to note that with the number of severe cases treated ante-partum, all but this one stood the test of labor or some operative procedure unusually well.

An important point brought out in this investigation was the relation of the blood pressure to decompensation, and it may be an important factor in prognosis. In nearly all cases on returning compensation the blood pressure shows a rise, even in cases where it already was above normal. In one case it went from 98/60 to 132/70, in another from 95/50 to 114/70, and in a third from 130/85 to 145/88. Many such instances can be quoted. In one case of acute dilatation, the pressure dropped from 128/80 to 50/? and then came back to normal as compensation returned. In the fatal case, the pressure was 128/88 on admission two weeks before delivery, and it gradually fell. In another patient where the break was so bad that we felt that she would not survive delivery, the pressure with returning compensation came up to 156/108. At about this point, further treatment was refused and the patient went home, to return in about a week as bad as ever and with a pressure of 120/80. After a week of treatment the pressure read 142/90 and there had been so much improvement that a Voorhees' bag was introduced and the pregnancy terminated by version and extraction. This procedure was entirely successful and the patient went home markedly improved.

The stage at which interference should take place is dependent upon the time at which the symptoms occur, the severity of the symptoms and whether or not there is a tendency toward returning compensation. If symptoms occur early in pregnancy and show tendency toward gradual increase in severity, in spite of treatment, the pregnancy should be terminated at once. If, however, there is improvement a watching policy may be adopted, for in almost all patients there is sufficient warning of the impending break.

Where symptoms appear suddenly during the later months and are severe the problem becomes more complicated, for treatment attempted at the time of the initial break may be just as serious as the disease.

When the time for interference has arrived, the safest method of procedure must be chosen. This depends upon the time in the pregnancy, the stage of labor and the parity of the patient, as well as upon the type of heart lesion involved.

The means must be the one with the least attendant strain or shock in accomplishing its purpose, and greatest care is necessary in its selection. In active endocarditis, especially where there are lung signs, the anaesthesia necessary for Caesarean section may be more serious than the cardiac disease. In mitral stenosis, with insufficiency and muscle change, the long process of dilatation and expulsion is far more serious than a Caesarean section under nitrous oxide and oxygen. Where there is marked edema of cardiac origin and passive congestion, such a procedure as manual dilatation of the cervix with version and extraction, may increase the danger, for the traumatization to pelvic vessels in even a slight degree may be the origin of a pelvic thrombosis with embolism, made possible by the venous stasis. If delivery is by the vaginal route and the head presents, it seems best to deliver by forceps as soon as dilatation is complete. This is best accomplished under nitrous oxide and oxygen after episiotomy, where the perineum is resistant and has in its favor that it shortens the labor perceptibly, and if properly done gives a minimum of shock.

Procedures other than the use of forceps in this group, were used as follows: Caesarean section, four times, twice for mitral stenosis and insufficiency, and once each for myocarditis and mitral insufficiency; Voorhees' bags were used five times, three times in mitral insufficiency, and once each for myocarditis and endocarditis. Three abortions were done after consultation with the medical

staff, and three patients were sterilized. In only one instance was manual dilatation done.

CONCLUSIONS

1. Cardiac decompensation during pregnancy is not uncommon.

2. Serious decompensation at the time of labor is rare.

3. Persistent cough and precordial pain are the most constant symptoms in grave decompensation.

4. The frequent reading of blood pressure during pregnancy complicated by cardiac failure is a valuable aid in choosing a time for interference with the pregnancy.

5. Lesions involving muscle change, or active infection of heart-valves are the most serious at labor.

6. Patients whose symptoms do not improve under treatment should have the pregnancy terminated.

7. Interference to shorten the labor of all cardiac cases is justifiable after the first stage has been completed.

DISCUSSIONS

Armstrong Taylor, San Francisco.—Dr. Schaupp has read a paper on a subject in which we are all deeply interested; a subject that is recognized many times and I believe more often not recognized. Dr. Schaupp kindly allowed me to look his paper over a few days ago and rather than discuss his paper at random, I have made notes on it. In discussing the paper, I wish first to emphasize the great importance of regular routine examinations during pregnancy. It has always been a difficult problem to decide when a patient is fit to undergo pregnancy. Even with a mitral stenosis, which is considered a very serious complication, many have gone through several pregnancies and in a subsequent pregnancy the most serious symptoms of a decompensation have occurred. These decompensations usually occur late in pregnancy and prognosis in such a case as this is always extremely doubtful. The prognosis is usually good as long as compensation is regained. It is not advisable, however, for these mothers to undergo the severe strain coincident to pregnancy. The myocardium should be the determining factor in all these cases. A patient with fairly good compensation should be under close observation during the entire pregnancy and I believe that at the first sign of a break some operative procedure should take place. A valvular lesion, I believe, when there is no decompensation and a reasonable amount of exercise does not change the condition of the patient, she should be allowed to go through her pregnancy and the chances are that she will go to term without any break in compensation. On the other hand, when there is a marked decompensation and the patient is cyanotic with marked edema and pulmonary congestion there should be no hesitancy in emptying the uterus. The next point that I want to call your attention to embraces those abortions in patients having a mitral lesion and where there have been repeated hemorrhages. In that particular instance, had we examined the patient carefully we would have found a high blood pressure and if that patient had been watched very carefully, with prolonged rest, the proper elimination and the right diet, I am positive that many of our abortions that are classed merely as abortions, brought about probably as we say through accident or some other reason, but which are due possibly to these mitral lesions, might have been prevented. I do not agree entirely with Dr. Schaupp in the statement that he makes, that possibly Caesarean section is advisable in a large percentage of these cases. It may, and it possibly is, a procedure that many times we are compelled to take when the patient is in an alarming condition. It is possibly the only reason for it, but there are many of these cases when the parts of the birth canal are very soft and edematous, dilatation with the bag and delivery immediately with forceps will probably cause the patient less strain than a Caesarean section. I would like to call your attention to a case that occurred recently and was sent to the San Francisco County Hospital. The history of the case and what we found at autopsy will probably give us a better idea of the pathological conditions that may be found in these cases. The patient was a para five and was sent to the hospital with a diagnosis made on the outside, of active tuberculosis. When we saw her she was very cyanotic. There was edema of the lungs and she was in a very critical condition. Dyspnoea and all the symptoms that you naturally find in a lobar pneumonia were present. She was put upon the table and spinal anaesthetic was used and she was delivered very promptly. The delivery caused very little strain and I am sure that there was very little stress occasioned during the delivery. The patient was taken to a ward room and appeared to be in a better condition than when she went on the table. One hour after delivery her condition was alarming. She sank very rapidly and died in about two hours. The findings of the autopsy were very interesting. There was a chronic endocarditis with a marked stenosis and edema of lungs. There was no tuberculosis and the lung had exactly the appearance of what we found during the influenza period, with the exception that there was none of the sero-sanguinous fluid present. I think that with proper care if these cases are watched from the beginning of pregnancy, no matter whether the lesion may be functional, as we often find, or whether it is a mitral stenosis, a cardiac decompensation or a myocarditis, without a doubt 75 per cent of them could be carried through to full term.

G. Carl H. McPheeters, Fresno.—I would like to emphasize the point that Dr. Schaupp makes in regard to blood pressure estimations. I have found in my experience that what he cites is quite correct. The blood pressure estimations made with regularity are especially important in cases of pregnancy which apparently have heart lesions of any kind.

K. L. Schaupp, San Francisco (Closing).—I am sorry that I did not make myself clear because the impression that Dr. Taylor received from what I said is not what I meant to say. I do not believe that we should do a Caesarean Section unless there is no other way. Caesarean section seemed to be the least serious procedure in the cases cited. I do not believe that anyone can tell you at any time what should be done in any particular case and that is the reason I lay stress on the point of medical consultation to determine just how much the heart can stand. In the case of the patient who died, the medical men advised Caesarean section quickly under nitrous oxide and oxygen which we opposed, because, as she had rales in her chest and signs of fluid, edema and dyspnoea and she could not lie down, we felt that the quickest way to kill the patient would be to give her any kind of an enesthetic. We thought to put in bags or to hasten the last stages of labor for her. It was her fifth baby and premature labor set in; she called an interne only when she was having severe pains. The baby was born spontaneously with the minimum of shock and strain before anything could be done. She seemed very much better at once and then suddenly began to sink. She died on the fourth day. The post-mortem examination, I think, justified our opinion in not doing a Caesarean section. It showed that there had been an old valvular lesion of the heart. The vegetations were active and there were small infected emboli in the lungs. There was a thrombosis in the pelvic vessels. There was minimum shock, no damage done by natural force of labor and yet the cause of death was pulmonary

embolism. I think if we had done a Caesarean section at that time it certainly would have resulted in earlier mortality. I sum up, in concluding, that each individual case needs its own individual study and careful consideration and sometimes when you have marked edema of the abdominal wall, as Dr. Taylor said, a Caesarean section is not wise. It means simply to be watchful throughout the pregnancy to see what the heart is doing and try to know what it can do when a strain is put upon it. A murmur is nothing, but you should be on your guard. You should see the patient more often and inform yourself about her general condition with the cardiac point in view. When she begins to show signs of decompensation, put her in bed and try to get her heart into better shape before anything is done.

(Stanford Medical School, Sacramento and Webster streets, San Francisco, Calif.)

THE PHYSIOLOGIC BASIS FOR THE EMPLOYMENT OF CALCIUM IN THE TREATMENT OF ASTHMATIC PAROXYSMS *

By F. M. POTTENGER, M. D., Monrovia, Calif.

Asthma has always been one of the enigmas of medicine, but with increased knowledge a solution of some of its problems has already been found and others are on the way to solution.

The greatest advance in etiology is the proof that asthmatic attacks may be superinduced by substances to which the patient has become sensitized. This fact, however, must not be considered as a complete solution of the problem of etiology, but must be taken for the suggestions which it offers for further study and research.

Analysis of phenomena which are recognized as being due to hypersensitiveness, particularly such clinical entities as urticaria, eczema, hay fever, and asthma, show that individuals subject to these conditions often belong to families in whom other members have the same tendency, and, further, that the tendency often manifests itself during the early period of life. Again, patients who suffer from one of these affections often suffer from more than one, and show such other symptoms as exaggerated oculo-cardiac reflex, bradycardia, hyperchlorhydria, and spastic constipation.

Of the older remedies for relieving asthma, antispasmodics were most generally used in such form that they could be burned and the fumes inhaled, or, if the attacks were too severe, hypodermics of atropin or morphin were resorted to. Adrenin has been used quite generally during recent years, and in most instances affords prompt relief from the paroxysm.

More recently clinicians, believing that most asthmas are due to a hypersensitiveness to some protein, have used great patience and wonderful ingenuity in working out the particular protein at fault in each case and then desensitizing the patient. When a failure to find a protein to which the patient reacts occurs, there is probably too much of a tendency to conclude that it is because the particular protein has not yet been tried. There is gradually developing, however, as a result of these studies and observations, a belief that these hypersensitive reactions are not all specific, and a strengthening of an opinion formerly quite generally held that there is probably a group of asthmas which is due to causes other than specific sensitization to protein, such as reflexes from the nose, sinuses, intestinal and genitourinary tract, and from the lung itself, as we sometimes see follow healing in tuberculosis. The fact that asthmatic paroxysms are precipitated by changes in weather and by the inhalation of irritants calls attention to the reacting capacity of the patient as a factor of importance.

It seems to me that our advances in the understanding of asthma can be furthered most at this time by a better analysis of the patient who suffers from the affection. This conclusion is based on the data recited above.

The first important fact in studying the patient is that the anaphylactic reaction is one which expresses itself as a parasympathetic syndrome; and the second, that the essential condition present in asthmatic paroxysms is the bronchial spasm and the increased bronchial secretion, both of which are due to a hyperstimulation of the pulmonary branches of the vagus, which is the most important nerve of the parasympathetic system. Other symptoms such as dyspnoea, emphysema, and rapid pulse follow the bronchial spasm caused by increased vagus action.

Further evidence of the parasympathetic (vagotonic) nature of asthma is furnished by the methods which have proved effective in relieving it, either general sedatives which take the tension off the nervous system as a whole, atropin which inhibits the vagus directly, adrenin which produces the same effect as though the sympathetics were stimulated and thus opposes the action of the vagus, or desensitization of the patient which relieves the extra stimulation of the hyperactive vagus (parasympathetic) system.

After arriving at the concept that asthma is a condition of hyperirritability of the pulmonary branches of the vagus, we are obliged to analyze further. The parasympathetic mechanism is not wholly an affair of the vegetative nervous system. What is going to happen when the nerves belonging to this or any system are stimulated will be determined not alone by their own state, but by the condition of the tissues upon which they act. Therefore, it is too narrow to view asthma as a parasympathetic syndrome in a strict neurologic interpretation of that term. We must conceive of it as being a disturbance in the whole neuromotor mechanism (including in this the secretory mechanism as well as the muscular).

Biochemical studies have established the important fact which clinicians are not sufficiently appreciating, that the cell itself determines largely its own action. Cells are made up of colloidal substances of which the phases differ greatly in different tissues and under different circumstances. These cells take up and give off various electro-

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* Read before the Los Angeles Clinical and Pathological Society, February 22, 1923.

lytic ions during activity; in fact, this process represents a great part of cellular activity.

Now, it has been shown that certain electrolytes have a determining influence upon what action shall occur in a given tissue or organ; for example: stimulation of the vagus of an experimental heart is of no avail unless the perfusing fluid contains potassium ions (Howell). Of all the electrolytes present in the tissues, it seems that potassium, sodium, and calcium are most closely connected with the processes which are controlled by the vegetative nerves.

While it would be presumptive to assume to interpret the whole action of sodium, potassium, and calcium ions upon the human organism from the knowledge which we possess today, yet there are facts known which are of great importance in the discussion of the subject before us. I shall leave much of this discussion for a future communication, but wish to mention here that a relative increase in potassium in the cells causes an action similar to that of stimulation of the parasympathetic nerves; for example: it strengthens the diastole in the heart and causes contraction of the musculature and an increase in the activity of the secreting glands of the intestinal and bronchial systems. Calcium, on the other hand, if relatively in excess, causes a reverse action similar to that of stimulating the sympathetic nerves. Sodium alkalinizes the tissues and at the same time produces in some structures action similar to that of potassium. The action of calcium and potassium ions on the cells shows the same general antagonism in action that belongs to the sympathetic and parasympathetic components of the vegetative nervous system, and we must look upon them as being an essential part of the neuromuscular mechanism in all vegetative activities.

The extended concept of the patient's reaction during paroxysms of asthma then implies that these reactions are an expression of a hyperactivity of the vagus-potassium system, and offers a further point of attack for therapy Whether this is actually a hyperirritability of the sympathetics and a lessening of the cellular content in calcium or a hyperirritability on the part of the vagus and an increase in the potassium content of the cell, I do not know, but that there is a *relative* hyperactivity of the parasympathetics and of the potassium content of the cells is evident, not only from the symtomatology present, but from the measures that are used to combat the paroxysms.

Throughout the entire enteral system, which consists of the gastrointestinal tract and those organs which are derived from it embryologically, the liver, pancreas, body of the bladder, and lungs, stimulation of the parasympathetics activates the musculature and secretory nerves, while stimulation of the sympathetics inhibits such action. In many of these tissues it has also been shown experimentally that a relative increase of potassium ions causes an increased activation, while a relative increase in calcium ions causes inhibition. Thus, calcium is defintiely identified with sympathetic, and potassium with parasympathetic action.

Reasoning from this concept of the neurochemical control of activity in the bronchial tissues, I recently tried to relieve the paroxysms in a severe asthmatic by producing a relative increase in the calcium content of the body cells. This patient (a woman, age sixty-five years) had had symptoms of asthma for more than a year, and the paroxysms had become very severe and frequent during the few weeks preceding the time this experiment was tried. The patient was markedly dyspneic and cyanotic, and the heart was dilated. The remedy was given in the form of the chloride in doses of 5 cc. of a 5 per cent solution, intravenously. After the second dose, which was given two days following the first, improvement was noted, and after three doses she was entirely relieved of paroxysms.

Three other cases were then put upon the same treatment. In each of these cases we have been able to completely relieve the paroxysms. One, however, proved to be very stubborn, but we finally succeeded in relieving him fully. This patient suffered from such severe paroxysms that he had taken as much as 7 cc. of adrenin in twenty-four hours, and had continued from 1 to 7 cc. per day.

It is evident that dosage will have to be studied carefully, and adapted to each individual in order to attain success. We felt that it was not best to start with doses larger than 5 cc. of a 5 per cent solution, but we later found that 10 cc. was more efficacious at times. In administering calcium chloride intravenously, the remedy should be given very slowly. Four or five minutes should be taken to give 5 or 10 cc. of this solution. Symptoms, such as flushing of the face, a feeling of heat, perspiration, constriction in the throat, and sometimes tension in the rectum are often noted by the patient. These symptoms, so far, have all been mild in character, and have soon passed away. They are minimized by the slow administration of the remedy.

After more experience with dosage, we feel hopeful that we may be able to give quicker relief to the paroxysm. This method of treatment should be carried on in conjunction with adrenin, the latter for its immediate action, the former for its more lasting effect. After once relieved, all patients have so far remained free from paroxysms, the time varying from three weeks to three months. After relief was attained we repeated the injections once or twice at five to seven-day intervals.

Calcium has been suggested in the treatment of asthma before, but so far I have failed to find a discussion of the scientific basis for its employment. It has been used in an empirical manner, and so has failed to secure the recognition which its importance warrants.

There are many interesting questions which suggest themselves as a result of this work, which I shall not discuss in this preliminary report, but leave for a future communication.

BRAIN INJURIES, MECHANICS, PROGNOSIS, AND TREATMENT *

By EDMUND BUTLER, M. D., San Francisco

The bones in the human skull are so arranged that the shock of an ordinary injury is well absorbed before the force can be transmitted to the brain. The frontal, mid-parietal and occipital regions bear the brunt of ordinary sublethal injuries. Here the bones are constructed to stand up under greater strain than other contiguous areas, and the portions of the brain that lie in contact with the skull opposite to these areas are less highly organized. The skull, as has often been described, has six perpendicular reinforcements, one corresponding to the mid-frontal region, one corresponding to each external angular process, one corresponding to each of the mastoid regions and one corresponding to the mid-occipital region.

Fractures of the vault are usually directed to the base by one of the thinner portions of the skull, bridging between these reinforced areas. The greatest distance and the thinnest portion of the skull bridges between the external angular process and the mastoid on either side. Thus, more fractures will be directed to the middle fossa. The reason that the posterior fossa has such a large percentage of fractures, some statistics giving a greater percentage of fractures for the posterior fossa, is that great force is often transmitted to the condyles of the occipital bones through the vertebral column. Often short linear fractures are found on either side of the foramin magnum of the occipital bone, but, as a rule, fractures of the posterior fossa communicate with fractures of the middle fossa.

Traumae producing brain injuries may be divided into two types. First type, the injuring object is moving and strikes the head, which is more or less stationary; for example, falling bricks, falling lumber, falling telegraph poles. In this type the injury to the brain is direct and corresponds to the cortex of the brain in immediate contact with the portion of the skull struck. The amount of direct injury being in direct proportion to the amount of force. In the second type, the head is moving and strikes some stationary, or nearly stationary, object. The best example of this type is the person struck by an automobile, the head is slammed against the pavement or curbstone; or the man that is thrown from an automobile, striking head against a tree, a fence-post, or the pavement. In this type there is a certain amount of direct injury to the brain corresponding to the area of impact, but far greater cortical destruction takes place on the opposite side of the brain. This is the contre-coup injury we hear so frequently spoken of. In this type the physical signs usually point to the contre-coup injury as the more extensive. In this type there are always some changes produced in the brain tissue, between the direct injury and the contre-coup injury. These changes varying from a slight agitation of the parenchyma of the brain followed by slight edema, to comminution with multiple hemorrhages and complete destruction. These two types of injuries may be combined; for instance, a man may have a direct injury knocking him unconscious, then he falls to the sidewalk, striking head and producing another fracture with direct and contre-coup brain injuries.

All of the above-described brain injuries may take place without any fracture of the skull. The absence of fracture does not change the prognosis or treatment. Brain injuries with and without fracture of skull are treated the same. Those injuries without fracture are just as serious, and often more so, than those accompanied by fracture. The usual picture at autopsy in these cases without fracture is a wet brain, convolutions flattened, with varying degrees of direct and contre-coup destruction and hemorrhage. Coronal sections show the brain to be studded with petechial hemorrhages, and the cut surface looks pale and waterlogged.

Seven hundred and fifty-five cases of brain injury, diagnosed as fracture of the skull, have entered the San Francisco Emergency Hospital during the last two years and a half.

Thirty-eight and five-tenths per cent resulted from persons being struck by automobiles; 24.2 per cent from falls from buildings, scaffoldings, and swings; 9.9 per cent from persons being struck by street-cars; 9.6 per cent from collisions between automobiles; 3.9 per cent from being struck by falling bricks; 3.4 per cent from fights; 2.85 per cent from street-car accidents; 2.85 per cent from motorcycle accidents; 2.85 per cent from causes unknown; 1.07 per cent from holdups; .7 per cent from automobile street-car accidents.

Since the type of brain injuries received depends upon the character of trauma, the history is very helpful as a guide in the prognosis. It is one of the important means we at times have in differentiating post-epileptic stupors, morphine poisonings, with old or recent scalp injuries, from fractured skulls with brain injuries.

A prognosis depending upon observations made while the patient is in primary shock is very apt to be unreliable. It is also very difficult to prognose upon the findings of one examination. The course of the pulse, temperature, blood pressure, spinal fluid pressure, the rapidity of the changes and disappearance of reflexes, the appearance of pathological reflexes, are of the utmost value in making a prognosis and outlining treatment.

Aids to Prognosis—Head injuries in the old are very serious. The sutures are very rigid and the blood vessels are of such a character that any concussion of the brain results in edema. Infants and children ofter recover from very extensive fractures of the skull with phenomenal rapidity. Hemorrhage from the ears and the nose is not an unfavorable sign. Such cases get along better than those of apparent equal severity without hemorrhages from ears or nose. A return of coma eight to fourteen days following such injuries, abscess of the brain is often the etiological factor. If the pulse does not come down following the usual treatment for shock, the prognosis is grave.

* Read before Fresno County Medical Society, January 2, 1922.

In all cases where the pulse and temperature begin to climb very soon after the accident, a favorable outcome is rare. Dilated pupils that do not react to light after time has been allowed for subsidence of shock are a very unfavorable sign. Cases that show early signs of cerebral compression usually go on to an early death.

The blood pressure must remain higher than the intercranial pressure; thus, if the blood pressure drops below the intercranial pressure death is imminent. This crisis is manifest by rapid pulse and falling blood pressure, or, as Steward of St. Louis puts it, "When the rate of pulse exceeds the systolic blood pressure registered in millimeters of mercury." This crisis usually takes place several times during the development of cerebral compression. If the regulatory centers of the blood vascular system are not affected, the period of lowered blood pressure will be very short, but as the intercranial pressure becomes excessive, there comes a time when a greater rise in blood pressure is impossible. Rapid pulse, Cheyne Stokes respiration, are the result of this final crisis. The character of the scalp injury is of very little value as a guide to the severity of the brain involvement.

The most valuable localizing sign as to the side of the compression and the degree of compression, in my experience, has been the condition of the pupils. The pupil on the side of the beginning compression at first reacts very sluggishly, often showing a hippus. As the compression increases this pupil slowly contracts, reacting at first, later pin-point and fixed, finally dilating slowly, followed by the same course of events in the other pupil.

The primary treatment in all cases of brain injuries is complete rest in a quiet, dark room, with head and shoulders slightly elevated, ice-cap to head, heat to extremities. Following the subsidence of primary shock, a careful examination must be made and full notes taken. Radiographs are valuable, but a shocked patient must not be moved just for a radiograph. Following the primary examination, the case must be observed frequently and notes made upon the character and rate of the pulse and respiration, character of the mentality, degree of stupor, the presence or absence of convulsions, the movements of extremities, the blood pressure, reflexes, and, in doubtful cases, the cerebral spinal fluid pressure. For the relief of headaches and slight degrees of intercranial pressure, the removal of cerebral spinal fluid is sufficient. The administration of salol coated, sodium chloride pills for the relief of these pains has been efficacious in some cases (W. Hughson, December 10, 1921, J. A. M. A.).

When Should We Operate?—1. Operation is indicated in depressed fractures, after shock has subsided. (2) Any case of increasing cerebral compression, regardless of whether it is due to extradural hemorrhage, intradural hemorrhage or parenchymatous edema, if the same is not controlled by cerebral spinal puncture and the administration of hypertonic solutions by rectum or sodium chloride pills by mouth. The greatest number of cases that could be helped by surgery, that are overlooked, are very slow-forming extradural hemorrhages that begin to manifest themselves at the end of the second or third day. About 10 per cent of all fractures have sufficient extradural hemorrhage to cause death, and over 50 per cent of this 10 per cent go undiagnosed because of the lack of frequent observation and inattention on the part of somebody.

Operation is not indicated—(1) in brain injuries so extensive that all reflexes superficial and deep are suspended. (2) When the pulse is above a hundred, if the rapid rate is due to shock alone, given time it will slow down and then operation may be performed if indicated; if due to destruction of brain or rapidly increasing intracranial pressure, the pulse continues to go up and any operative interference would only hasten the end. (3) When all the signs of cerebral compression develop very rapidly; for example, in the first hour. (4) Medulary edema manifesting itself very soon after entrance into the hospital by rapid pulse, shallow respiration, and a rapidly rising temperature.

(Butler Building.)

Lay Medicine—Every faith, cult, system of thought, institution of learning or systematized organization wanes in the success of its activities and undergoes retrograde changes unless protected from those influences which make for lessened efficiency and intrinsic worth. Organized religion finds it necessary to adopt measures varying with the needs of the time to preserve the purity of its doctrines and prevent their overthrow or obliteration by the inroads of heresy and schism. The dominant thoughts of national character and politics, unless kept fresh by frequent review and the recollection of salient factors, and lessons learned by history soon change and are perverted into the means of anarchy with resulting harm to peoples and the lowering of the social level of posterity. So also does the torch of true learning become uncertain in its light as a guiding beacon, its bright, clear flame, smoky and dim, will no longer be accepted by peoples as their star of hope in matters medical and hygienic, if it is no longer fed with the fuel of sound, sensible and sane thought and the hand that holds it strong, firm and unshaking.

The torch of scientific medicine, thanks to the combined efforts of many, if not all branches of science, has risen from a murky fog of secrecy, doubt, nostrums and uncertainty and made clear the way for the solution of medical problems which with ever increasing knowledge have multiplied many fold until our information on many medical subjects is quite complete and satisfying. Until within a very few years it has seemed that the medical profession was not only the custodian of knowledge of matters medical but also the means of putting into practice the means of prevention and cure of disease. It was furthermore closely associated with allied subjects, all of which insured its position as a competent adviser of individuals and peoples, and made it as great as any of the learned professions. That a change in its status, a curtailing of its fuctions and a lessening of its usefulness as a leader of sound, scientific thought has taken place is evident to anyone.—Editorial, Rhode Island Medical Journal, April, 1923.

TREATMENT OF DIABETES *

By A. F. WILLIER, M. D., San Diego, Calif.

When one essays to present a dissertation, no matter how brief, on the topic of diabetic therapy, it is at least assumed that he possesses some special knowledge of the subject, which, in all probability, is the result of extensive observation or investigation. In this instance, however, such is not the case. I have incorporated here, with little of scientific value or true originality.

Diabetes is a disease which has a peculiar fascination for all who make a study of it. No malady, perhaps, in comparison with the number of individuals involved, has attracted as much attention. And while the riddle of diabetes is far from being solved, recent and present studies made upon it have been of great value in throwing light upon many of the intricate processes going on in the body, and have brought about improvement in the treatment of the disease itself. While it is true that diabetes is a chronic disease, unlike cancer or rheumatism, it is painless; unlike tuberculosis, it is clean and not contagious, and in contrast to many skin diseases, it is not unsightly. Moreover, and above all, it is amenable to treatment, and the downward course of the patient can usually be checked. It has already been shown that a number of these chronic patients have lived longer than would have been expected of them had they been normal, healthy people. For the diabetic, this is a demonstration and a challenge. While the underlying cause of diabetes is usually considered to be a derangement in one of the functions of the pancreas, strangely enough the secretions of this gland, which are capable of digesting all kinds of food, usually remain undisturbed in this disease. The fault with the pancreas, in diabetes, concerns that function of the gland which regulates the body's use of sugar, formed from the food. There is probably an interference in the manufacture of a special ferment or internal secretion, which is usually discharged into the blood.

The comment is frequently made that diabetics live for years, with little inconvenience to themselves, even though strict rules of diet are neglected. While this may be a consoling thought to a weak-willed patient, if the average diabetic yields to such seductive advice, the probability is overwhelming that he will later pay the penalty—and in full. While such statements are untrue, their origin probably lies in the favorable course of the large number of mild cases; but it is ever folly to disparage the strength of the enemy, no matter what the conflict be. How serious in the past diabetes has really been and at the same time how much the methods of treatment have improved during the recent years, are best shown by the statistics of the Massachusetts General Hospital, where the percentage of mortality has fallen from 28 per cent to 4 per cent, from 1900 to 1918. Joslin shows a still smaller percentage, his death rate in the past ten years falling below 2 per cent. This is a remarkable record when it is recalled that diabetes was at one time considered an incurable disease. The improvement may be attributed to newer methods of treatment; more accurate tests in estimating the severity of the acid poisoning; the preliminary omission of fats prior to any change in the diet; and, lastly, the omission of alkalies. The study of diabetes is of greatest interest to the student of dietetics, for it is by the regulation of the diet that the diabetic's life is made more comfortable and his days prolonged. The treatment lasts through life. The co-operation of the patient must be secured by explaining the importance of it. He must be taught the nature of his disease and how to conquer it; in other words, he must be made to understand that he is really taking a course in diabetes. He must have a fair knowledge of the nutritive and caloric value of the carbohydrates, proteins, and fats, since his disease is a condition in which the normal utilization of carbohydrates is seriously impaired. He must be made to understand that his malady is usually due to overeating, since 80 per cent of diabetics show obesity. He should be encouraged to make regular visits to his physician, to present information concerning his daily urine, weight, diet, blood pressure, and perhaps the blood itself. A note-book, kept by the patient, serves to keen his interest and raise the efficiency of his visits to the medical attendant. Any agency which promotes physical or mental hygiene is a step toward the prevention of diabetes in the predisposed, and the abatement of its severity in those who have acquired it. Patients should be encouraged to take long walks outdoors, go on camping trips, and relax from business worries as much as possible. Besides the good effect of the exercise, in the improved circulation and general well-being, the patient can add more carbohydrate to his diet, which means more comfort. Regular hours of sleep are imperative. Proper clothing should always maintain sufficient body heat. Mental diversion is desirable, but anxiety is harmful. Heavy responsibilities should be avoided, but the mind should be occupied and cheerfulness ever cultivated.

The nutritive value of all food depends upon the quantity of carbohydrates, protein, and fat which it contains, one gram of carbohydrate and protein producing four calories each, while one gram of fat produces nine calories; one gram of alcohol yielding seven calories. The ordinary diet for a man at moderate physical work would contain 100 grams of fat, 100 grams protein, and 400 grams carbohydrate. This would amount to 2900 calories in the twenty-four hours, or about forty calories per kilo for an individual weighing seventy kilos or 154 pounds. It is readily seen that more than 55 per cent of the energy of the average individual consists of carbohydrates. In diabetes, as will be noted, the diet is composed almost exclusively of the latter two foods. He requires a smaller amount of carbohydrates, fewer calories in general, and a greater quantity of fat than the ordinary individual. He should utilize the minimum number of calories, twenty to thirty per kilo, or about ten to fourteen per pound. This is a little less than the ordinary individual. As dia-

* Read before the San Diego County Medical Society, November 28, 1922.

betes is a condition in which the normal utilization of carbohydrates is impaired, a decrease of approximately 24 per cent of the normal carbohydrates is observed. There is practically no restriction in the protein diet of the diabetic, except at the beginning of the treatment. Fat, however, forms the bulk of the diet. The life of the Eskimo affords ample proof that it is both possible and feasible to maintain life on a diet in which carbohydrate is largely replaced by fat. The amount of fat allowed a diabetic must be observed closely, for while it constitutes a main article of diet, it is also a chief source of the dreaded acidosis, although protein may contribute to it as well. Fat, therefore, while it may preserve the life of the diabetic because of the high nutritive value, may destroy it by causing acid poisoning. While the caloric value of alcohol is high, 1 cc. yielding seven calories, it does not hold a high place in modern diabetic therapy. It is rarely necessary to restrict the amount of liquids in diabetics, although large quantities may disturb the digestion. Salt is of great service to the diabetic, for without it the weight falls, due to the excretion of water, the skin of the patient becoming dry. Diabetic patients are generally thirsty, because they must produce enough urine to dissolve the sugar and thus remove it from the body. Likewise, they are usually hungry because they must eat enough to sustain life, and in addition enough to make up for the sugar lost in urine.

The purpose of the dietetic treatment is to enable the diabetic, by the rearrangement of his diet, to lead a useful life. This is best obtained by keeping the urine sugar-free. While sugar in the urine is chiefly depending on sugar and starch in the diet, the simple reduction of the total quantity of the diet may result in its elimination. A reduction of the total caloric value of the diet is most easily effected by giving up fats in all forms. The simplest procedure in a mild case of diabetes is to decrease the total quantity of the diet, irrespective of its quality, to such a point as will bring about a slight loss of weight. Frequently this is all that is necessary to make the urine sugar-free. While there are many ways by which the urine of the diabetic may be made sugar-free, the simplest of all is by fasting, and in reality all other methods converge to this. If fasting for a day or two appears inadvisable, the simple omission of all fats, which materially reduce the nutritive value of the diet, may render the urine sugar-free. Formerly, physicians endeavored to get their patients sugar-free by the reduction of the carbohydrates in the diet, at the same time immediately increasing the amount of fat and protein, to make up for the calories lost. On account of various dangers attending, this practice has been greatly abandoned. The ideal method is to make the urine of the diabetic sugar-free, without any risk to the patient. This is brought about either by complete fasting or by withdrawal of fat from the diet, and the subsequent reduction of carbohydrates and proteins to a point at which the patient no longer voids sugar in the urine. Frequently both methods are combined. In severe, long standing and complicated cases, without otherwise changing habits or diet, omit fats, and after two days decrease the protein, at the same time halving the daily amount of carbohydrate until the patient is taking 30 grams, or less. Then fast for four days, unless the urine becomes sugar-free earlier. During the fasting days, allow the patient to drink water freely; also tea, coffee, and thin broths as desired. In moderate cases begin fasting at once, without the preliminary or gradual abstinence. Fasting is seldom complained of by patients, unless before the ordeal starts; the tea, coffee, and broths being sufficiently grateful. While vigorous exercise is contraindicated during the fast, it is not necessary for the patient to remain in bed. It is agreeably surprising to observe how quickly the urine becomes sugar-free, after the fasting days. In general, cases seen soon after the onset become sugar-free promptly, while the reverse is true for those of long standing. Rarely is it necessary for a patient to fast more than a few days; and it is usually preferable, after four days of fasting, if the urine still contains sugar, to feed the patient for two days and then fast again. When the twenty-four-hour quantity of urine has been sugar-free, gradually add carbohydrate until the sugar returns. In this way the tolerance for carbohydrates is determined.

TABLE NO. 1

Carbohydrates Content of Ordinary Vegetables and Fruits

5 Per Cent	
Lettuce	Sorrel
Spinach	Tomatoes
Asparagus	Cabbage
Rhubarb	Raddish
Kraut	String Beans (canned)
Greens	Celery
Cucumbers	Mushrooms
Egg Plant	Artichokes (canned)
10 Per Cent	**15 Per Cent**
String Beans	Green Peas
Pumpkin	Artichokes
Turnip	Parsnips
Squash	Lima Beans
Beets	**20 Per Cent**
Carrots	Potatoes
Onions	Baked Beans
Green Peas (canned)	Green Corn
5 Per Cent	Boiled Rice
Ripe Olives	**15 Per Cent**
Grapefruit	Apples
10 Per Cent	Pears
Orange	Apricots
Lemon	Cherries
Cranberries	Currants
Strawberries	Raspberries
Gooseberries	**20 Per Cent**
Peaches	Bananas
Watermelon	Plums

The carbohydrates are usually given in the form of 5 per cent vegetables, choosing those which are more bulky. It is best to have these boiled in three waters. Following the 5 per cent vegetables, one can proceed to the 10 per cent group. When the

urine is again sugar-free, decrease the carbohydrates to two-thirds below the tolerance, and add, about 20 grams daily, protein in the form of egg-white, fish, or lean meat until the patient is receiving about one gram protein per kilogram weight. The advantage of increasing with the determination of the carbohydrate tolerance is that one approaches a nearly normal condition. Fat can now be added to the diet, from 5 to 20 grams per day, unless acidosis appears, or until the patient ceases to lose weight. The return of sugar requires fasting for twenty-four hours, or until the urine is again free from it. Resume the former diet, adding fat gradually and last of all, in order to maintain a high carbohydrate tolerance. Whether sugar appears afterward or not in the urine, it is desirable upon one day each week to rest that function of the body which controls the assimilation of sugar by either a complete fast-day or a diet of low caloric value. It is noted that children become fretful on fast-days, although physically they endure it well. If they are allowed a few green vegetables, in addition to the broth, they get along more comfortably. Fast-days and rigid diet is imperative in the case of children, for disobedience, with them, means death. The good effects of a fast-day, with children as well as adults, continues many days beyond the actual fast. The caloric needs of a diabetic vary not only with each case, but vary with each case each day. It must be remembered that an individual trained to be quiet or lying down can get along well on twenty calories per kilogram, while those whose economic demands require that they engage in active work may require as high as thirty calories. Habits of each individual patient should be studied, and their caloric needs gauged accordingly. The responsibility for the management of the diet should, except in the case of very young children, rest with the patient himself; hence the necessity of knowledge pertaining to food values by the patient. All diabetic patients should eat too little rather than too much. With a return to normal weight, sugar may appear. The carbohydrates in the diet should be divided between the three meals. It is always possible to get articles of food which are included in a strict diabetic diet for a few meals, such as eggs, meat, butter, oil, and even 5 per cent vegetables.

Acid intoxication is the bugbear of the diabetic; formerly six out of ten succumbed to it. Acidosis in the diabetic differs in no respect from that occasionally met in normal individuals when carbohydrates are omitted from the diet for several days. The ferric chloride reaction will then appear just as in a severe diabetic, and if at the same time the quantity of fat is increased, a type of acidosis will be caused, so severe as to threaten the life of the individual. If, however, a healthy body is gradually accustomed to live upon a diet low in carbohydrates, acidosis is avoided. The same course of events takes place in diabetics. Formerly, fat was given to a patient in whom the carbohydrate was withdrawn, in order to maintain his weight. Today patients are first deprived of fat, in order to do away with the dangers of acidosis; then they are made sugar-free by gradual reduction of carbohydrates and protein by simple fasting. When the patient is sugar-free and the diet is increased, fat is the last element to be added. In severe acidosis, supply a special nurse, keep the patient in bed, and warm. Move the bowels with an enema, avoiding drastic cathartics. Give large quantities of water, at least one quart each six hours, which must be hot and sipped slowly. In addition, give coffee, tea, and thin broths. Salt solution may be given by rectum or intravenously. If possible start the fast at once, giving in addition four teaspoonfuls of salt daily. If there is retained food in the stomach, when the patient is first seen, empty it at once. Sustain circulation with the help of digitalis and black coffee by mouth and rectum. Avoid the administration of alkalies.

TABLE NO. 2

Quantity and Caloric Value of One Ounce of Common Foods

	Grams of Carbohydrates	Protein	Fat	Calories
Oatmeal	20	5	2	120
Shredded wheat	23	3	0	105
Cream, 40 per cent	1	1	12	120
Milk	1.5	1	1	20
Brazil nuts	2	5	20	210
Oysters (six)	4	6	1	50
Meat (cooked, lean)	0	8	5	75
Bacon	0	5	15	155
Cheese	0	8	11	130
Egg (one)	0	6	6	75
Vegetables, 5 per cent	1	0.5	0	6
Vegetables, 10 per cent	2	0.5	0	10
Potatoes	6	1	0	30
Bread	18	3	0.5	90
Butter	0	0	25	225
Oil	0	0	30	270
Fish (cod)	0	6	0	25
Broth	0	0.7	0	3
Fruit, 5 per cent	1.5	0	0	6

Most diabetic patients are obese prior to the onset of the disease. When the sugar begins to be lost in the urine the weight falls, because the body is unable to utilize the food taken. During the treatment a too great loss of weight must not be permitted, as this fact is frequently due to a deficient number of calories. The diabetic diet is expensive, whether treated or untreated, but in the latter case the waste is enormous. Joslin reports an untreated diabetic who ate thirteen eggs for breakfast, not as a stunt, but because he wanted them. Another case reported by him, a lady thirty-five years of age, ate a dozen eggs a day, also maintaining a diet containing sixty calories instead of the normal thirty calories, the patient, notwithstanding, losing sixty-six pounds in a little over two years. This was due to the great loss of sugar, which was over 5 per cent. It is obvious that there is a great saving of food, which results from becoming sugar-free under modern treatment. Untreated diabetics frequently eat as much as three

men of their own size. The diet of the treated diabetic, however, is also expensive. In hospitals it has been observed that the diabetic's diet is 26 per cent more expensive than the ordinary patient's diet. He cannot exist on ordinary cheap carbohydrate foods, such as bread, cereals, and potatoes, but must replace these with expensive varieties, such as eggs, meat, broths, and fresh vegetables. The teeth of the diabetic should be kept in good condition, since the malady grows worse in the presence of inflammatory conditions about the teeth and gums. The skin must be kept unusually clean; a tub bath daily is most desirable. Patients should be warned of the dangers of wounds, and should report any skin affections or lesions at once. Absolute cleanliness of the body serves to prevent the tendency to furunculosis, which was formerly very common. While active purging of the bowels is to be avoided, they should be made to move daily. Depend more on regular habits for bowel action, or if necessary use an enema or simple laxative.

TABLE NO. 3

Comparative Diet of a Man, Sixty Kilograms Weight (132 pounds)

Normal		
Carbohydrate	250 grams	1000 calories
Protein	70 grams	280 calories
Fat	65 grams	585 calories
	385	1865
Diabetic		
Carbohydrate	75 grams	300 calories
Protein	90 grams	300 calories
Fat	110 grams	1125 calories
	275	1725

The use of drugs in the therapy of diabetes is ordinarily considered a mooted question. The condemning and discouraging of prescribing them, however, for the purpose of making the urine sugar-free, has been a heavy favorite indoor sport. Personally I am not prepared to join the ranks of the latter, since I have been using, for the past five years or more, a pancreatic extract in connection with dietetics, both of which hereby receive credit for satisfactory results obtained. Experimentally, with animals it is easy to produce diabetes by simply removing a large portion of the pancreas. If the diabetic patient could secure a new pancreatic gland he would be cured. While surgery as yet has not been successful in this respect, the administration of a pancreatic extract to a function-impaired gland appears rational to me. The widespread application of organotherapy is a conspicuous feature of modern therapeutics. While yet in its infancy and experimental stage, it has grown so rapidly, and its uses have proven so successful, that its application demands recognition. As stated at the beginning, we have yet much to learn about diabetes, and the future will reveal that advancement along this line has kept pace with the onward, general progress of medicine and surgery.

Granger Building.

THE CLINICAL USES OF OXYGEN *

By LORRULI A. RETHWILM, M. D.

Oxygen, discovered by Priestly and Lavoisier in 1771, was put to no practical use for many years. In 1868 Andrews of Chicago first showed the value of oxygen with nitrous oxid, thus making nitrous oxid anesthesia practicable.

Probably the first apparatus for administering nitrous oxid and oxygen in known proportions was made by Hillischer of Vienna. His findings led Hewitt to investigate the value of oxygen. The latter gave special attention to its use with nitrous oxid and showed that, when air is given with nitrous oxid, only 60 per cent nitrous oxid can be given, as 40 per cent air is necessary if the patient is to get the least amount of necessary oxygen from the air. If oxygen is given in this same percentage, the 32 per cent of useless nitrogen in the air can be replaced by the same amount of nitrous oxid and a deeper, more satisfactory narcosis is the result. In 1904 Gwathmey proved by experiments that oxygen increases the value of all anesthetics as regards life without decreasing their anesthetic effect.

In 1909 Davis of Chicago made use of oxygen with nitrous oxid in obstetrics; a Cesarean section was performed under it. The next year Guedel began using nitrous oxid-oxygen in obstetrics, practically as it is used at the present day.

At various times oxygen, used as a measure to be tried in extreme cases, has been found of absolutely no benefit. This is largely because it was used too late, or was given through a funnel inverted over the patient's face. Oxygen given this way does practically no good, as by this method the oxygen in the alveolar air is raised at most only 2 per cent.

Three atmospheres of oxygen give pneumonia to animals, and Lorraine Smith has shown that animals develop pneumonia if kept in an atmosphere of pure oxygen for several days, but 70 per cent or less oxygen can be breathed for any length of time without harm to the patient.

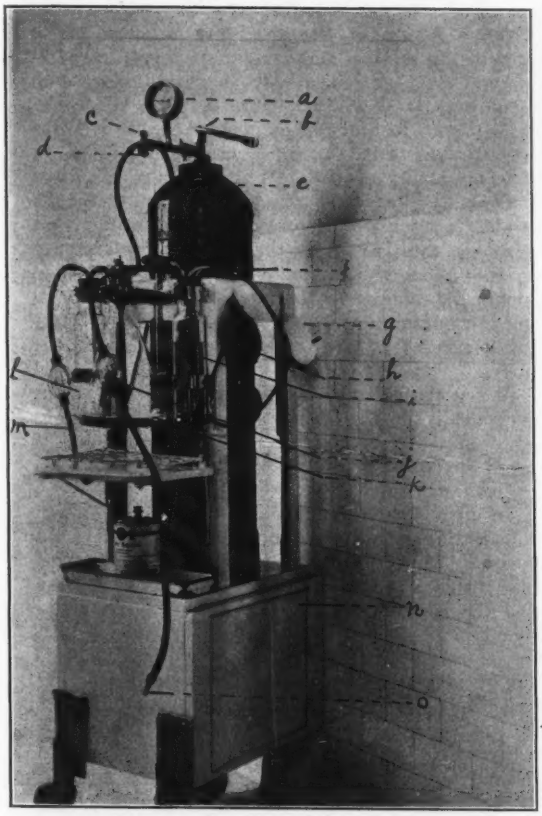
The hemoglobin is usually nearly saturated with oxygen in a normal person, but the hemoglobin only stores oxygen which it releases to the plasma as the latter gives up its oxygen to the tissues. About one-fortieth of the oxygen of the blood is carried in the plasma, and with increased pressure of oxygen in the alveolar air the plasma will carry more than it normally does. Bohr of Copenhagen demonstrated that, when the carbon dioxid in the blood is lowered, the hemoglobin will not give up its oxygen to the plasma, and the result is an anoxemia with plenty of oxygen in the blood. This may be overcome by adding oxygen with some rebreathing or some carbon dioxid.

Normal alveolar air contains 16.5 per cent oxygen. Delivered into the pharynx through a catheter in one nostril, it will raise the alveolar oxygen over 20 per cent, and if the other nostril is closed rhythmically the alveolar oxygen may be

* Presented before the Anesthesiology Section of the State Society at the annual meeting in Yosemite.

as high at 59.9 per cent. A Meltzer mouth tube for oxygen with rebreathing gave 34.6 per cent alveolar oxygen after nine minutes' use; repeated with nose clamped, gave 86.7 per cent. At this percentage the oxygen in the plasma is raised to seven times the normal amount.

During the war interest in oxygen revived. Hoover and others noted that, in cases with foam in the air spaces, oxygen relieved the cyanoses and anoxemia, but not the air hunger. By experiments, oxygen has been proved an essential to the life of



A. Gauge. B. Valve for opening tank. C. Two-way tap. D. Adjusting screw. E. Oxygen tank. F. "Shut-off" on air tube. G. Vapor mask. H. Cautery bulb for giving even flow of air. I. Ether in cylindrical bottle. J. Murphy drip bulb. K. Ether in Ehrlenmeyer flask. L. Water in cylindrical bottle. M. Tube for giving oxygen without ether. N. Cupboard with door in back and on side; contains suction apparatus, box of catheters, etc. O. Right angle tube; attaches to vapor mask.

the cells, and if it can be given the patient so that the oxygen unsaturation in the blood will be normal, or less than normal, the patient can frequently be tided over a critical period, in which lack of oxygen would irreparably damage his tissues, in particular his heart. Haldane has declared oxygen to be not merely a palliative measure, but one to help the body recuperate, as it is always trying to revert to normal. Improvement after oxygen usually lasts.

It is important to remember that anoxemia is often present without syanosis or air hunger. Air hunger has been shown to have no connection with oxygen want, but to be caused by retention of carbon dioxid in the blood, which occurs, for example, when there is moisture in the air spaces; although carbon dioxid influences the respiratory center, oxygen-want also affects it, at first stimulating, and if it persists, making it stop acting because of anoxemia. Promptly given, oxygen will start it again.

Barcroft, Haldane, Douglas, and others have shown the benefit of oxygen in gas-poisoning, pneumonia, and some other anoxemias, both as immediate treatment and for late symptoms, such as nocturnal dyspnoea, palpitation, mental depression, etc. They use 35 to 60 per cent oxygen. A mask for giving oxygen with rebreathing was usually not borne well by their patients, and, though wasteful, they found a catheter inserted through the nostril to the nasopharynx best. An oxygen room with 50 per cent oxygen, excess carbon dioxid being removed, was found excellent for hospital treatment, especially in late cases.

Stadie, Meakins, and others—more recently Barach and Woodwell—have proved the benefit of oxygen in pneumonias. The period before the crisis in lobar pneumonias is often saved from a fatal outcome by oxygen, and the recovery of all pneumonias hastened. Cardiac cases were also improved with oxygen treatment, but in a lesser degree.

Oxygen therapy is now being used in resuscitation work; surgical procedures, such as inflation of psoas abscesses, knee-joints and wounds, and in tuberculous peritonitis, with duodenal lavage in cases of fermentative and putrefactive dyspepsias; in asthma, cardiac disease and many anoxemias, with more or less success.

At Stanford hospital we use oxygen in more than half of our anesthesia cases, not counting the oxygen used in nitrous oxid-oxygen anesthesia. Before putting a patient to sleep we always make use of the breath-holding test, first mentioned by Stange of Petrograd, now used by Jones of Columbus and others. This consists in having the patient take, through his nose, a deep breath and hold it. Those who cannot hold it longer than ten to twenty seconds are poor anesthetic risks; thirty to forty seconds is the normal length of time the breath can be held. Among other indications this test gives us an idea of the oxygen need of the patient.

Our inductions are begun with a large percentage of oxygen with the nitrous oxid. This greatly lessens, or takes away, the sense of suffocation of which nervous patients especially complain. After a few breaths the oxygen percentage is reduced to about ten, in ordinary cases. By using a large percentage of oxygen with nitrous oxid, this mode of induction can be safely used on children, one or two years old, and ether added in the usual manner on the gas machine before changing to ether vapor or ether by drop method.

When giving ether we frequently add oxygen, the method of administration varying with the case. At times it is given through a catheter inserted through the nose as far as the pharynx. Again, we may give it through the mouth hook; then it is necessary to have the patient breathing through his mouth, either with mouth open, as in tonsil

work, or with a free airway for the passage of oxygen as is obtained by inserting a wire airway in the patient's mouth. A closed metal breather will not allow the oxygen from the mouth hook to be inspired, and most of it escapes from the side of the mouth. One way in which we very frequently administer it is with the vapor mask which Dr. Caroline B. Palmer has had made. The mask consists of a wire mesh Yankauer mask on the center of which a piece of copper the size of a dime has been soldered; this piece of copper is perforated centrally with about fifty pinpoint openings. Above the disk, on top of the mask, a small cylindrical tube, five-eighths inch in diameter and one inch high, is soldered. A small tube bent at a right angle, and about one inch long in each direction, fits into this, and the rubber tubing through which the oxygen or ether vapor is conducted is inserted on the other arm. This mask is placed over mouth and nose. A towel may be folded around the junction of mask and face to prevent escape of oxygen or ether vapor. We have several small tanks of oxygen equipped with wash bottle, rubber tubing, and mouth hook. They stand in small wooden frames on rollers. These can be used any time desired while ether is being given by any method.

In rare instances when a patient has held his breath during induction, due to some reflex, and has become cyanotic, we have found that oxygen given through a mouth hook or through a catheter in the pharynx would relieve the cyanosis almost at once, even before the patient had taken a breath, showing that this oxygen reached the lungs, whereas oxygen given by any face mask at the same pressure would not change the patient's color until he took a breath.

Our usual way of giving oxygen is by the use of oxygen-ether vapor. Our apparatus is arranged so that either air or oxygen can be passed through the ether and the vapor delivered to the patient. Our favorite machine, which we call Dr. Palmer's, because it was made under her direction about ten years ago, is a wooden frame holding an oxygen tank fitted with a pressure gauge and an adjusting screw for regulating the flow of oxygen. Beyond the screw is a two-way tap, by which the oxygen can be either directed to the right side of the machine and passed through a wash bottle of water, and then given to the patient, or, by turning the tap will pass to the left side of the machine. Here it is connected with a cylindrical bottle and a two-liter Ehrlenmeyer flask, both containing ether, one or both of which can be used, in varying combinations depending on the strength of the vapor desired. The tap can also be turned halfway so that oxygen will pass through the wash bottle containing ether and at the same time through the ether bottle of the machine. In this way a small amount of ether can be given and a great deal of oxygen simultaneously. Oxygen given alone reaches the patient at room temperature. In giving oxygen-ether vapor the mixture is between room and body temperature when inhaled, for with several layers of gauze over the mask, and especially if a towel is placed loosely about the edge, there will be some rebreathing and the vapor will be but a little less than body temperature when inhaled. We find that when using this vapor method a great deal less ether is required than by the drop method even with oxygen added, and the depth of anesthesia can be varied more easily. Because of their need of oxygen we use ether-oxygen vapor routinely for very young patients, the very old and feeble, toxic, anaemic and nervous patients, for goiter cases or any case with increased metabolism, such as patients with high temperature.

When a patient breathes noisily or laboriously we give oxygen and find that he will usually breathe quietly in less than five minutes. If a patient has shallow and rapid respiration, the addition of oxygen will almost invariably make him breathe more slowly and more deeply. When the pulse begins to be rapid or of poor quality we give oxygen, and find the pulse usually improved in rate or quality or both. If it does not, or if the patient has lost fluid at operation, or before by hemorrhage or profuse sweating or vomiting, we give salt solution under the skin or intravenously so that there will be more plasma to carry more oxygen in solution to the tissues and keep them in good condition until the anoxemia can be better taken care of by the protective mechanism of the body.

When the patient attempts to vomit, as happens occasionally during an induction or during nitrous oxid administration, a few breaths containing a large percentage of oxygen will usually avert vomiting and straining.

In nitrous oxid-oxygen anesthesias we use oxygen sufficiently freely to keep the patient free from cyanosis. Harmful effects of nitrous oxid have come only when it was pushed to the point of asphyxia and the patient was suffering from oxygen want. The type of patients listed that require oxygen during an ether anesthesia also need a larger percentage of oxygen under nitrous oxid-oxygen. In these cases we prefer to add a small percentage of ether to our anesthetic if needed to relax the patient, rather than force nitrous oxid and thereby reduce the oxygen to an amount which would be harmful to the particular person. If ether is absolutely contraindicated, the addition of local anesthetics may be sufficient to give a satisfactory anesthesia, or the operation might be done under nitrous oxid-oxygen analgesia.

At the close of an anesthesia we often give oxygen for a short length of time, usually with the mouth and nose covered sufficiently to conserve carbon dioxid by moderate rebreathing. In nitrous oxid anesthesia this brings the patient out of the anesthetic more quickly and quietly than respirations of the same depth and rate when the patient is breathing air. Oxygen given after an ether anesthesia helps "wash" the ether out of the lungs more quickly; especially is this true if oxygen-ether vapor has been given throughout. It also helps to obviate post-operative nausea.

In obstetrics we use nitrous oxid and oxygen. The usual percentage is twenty of oxygen and eighty of nitrous oxid. Some patients can have 25 to 30 per cent of oxygen until the severer terminal pains. We have the patient take three deep

breaths quickly. The first two are exhaled and the third is held while the patient bears down. If the pain is more severe, more breaths can at once be taken, but we find this is usually sufficient. If the patient is susceptible to nitrous oxid more oxygen can be given. If the pain is a long one a single additional breath of the same mixture can be taken and held while the patient pushes, and a third single breath in like manner. We use the high percentage of oxygen for the sake of the baby, which in utero is susceptible to nitrous oxid, but with the percentage of oxygen mentioned, no injury to the baby's heart or respiratory center will occur. As soon as the head is born pure oxygen is given until the baby is born and is pink, provided the cord is still pulsating. Recently a baby became blue about a minute after it was born, oxygen having been stopped in the meantime. As the cord was still pulsating the mask was again put on the patient's face and all cyanosis in the baby disappeared after the mother had taken a few breaths of oxygen, the baby not breathing meanwhile. Results are not always quite as striking as this. Besides protecting the baby the percentage of oxygen we use is safe for the mother, even if labor is complicated by toxemias or some chest condition.

During the influenza epidemic we were occasionally called upon to give nitrous oxid to an influenza patient in labor. In some cases we added more oxygen than our usual 20 per cent. This was especially true of a few pneumonia cases. One case is worth mentioning in this connection. The patient was dangerously ill with influenza pneumonia. The case was a breech presentation, and nitrous oxid-oxygen was given. Fifty per cent oxygen was used for pains and 30 per cent during delivery, with two minutes pure oxygen as soon as the baby was born. The patient was returned to bed in better condition than she had been before delivery, and made a good recovery. In this case the large percentage of oxygen given was probably instrumental in tiding the patient over a period of anoxemia, which experimenters have shown may be sufficient to determine the favorable outcome of a pneumonia or at least hasten it.

In Caesarean sections we also add about 20 per cent oxygen to the nitrous oxid, preferring to use a minute amount of added ether vapor rather than decrease the oxygen. Frequently, when the baby is delivered we give pure oxygen for the short interval until the cord is clamped. This is not long enough to allow the patient to awaken. In almost every case the child cries as soon as removed from the uterus.

CONCLUSION

The three physicians on the regular anesthetic staff at Stanford hospital have had ample opportunity, during the average of about 3000 cases a year, given or supervised by them, to compare the clinical differences of patients receiving oxygen and those not given any. In general these anesthetists have independently reached the conclusion that, besides the advantages just noted, an oxygen-ether anesthesia will usually be smoother, more even, with the use of considerably less ether to keep the patient asleep than is necessary when a plain ether anesthesia is given. Their clinical observations verify the advantages noted by the many experimenters of late years who have tested the value of oxygen. Various definite tests and experiments have been planned, but not undertaken. I can only say that in actual practice during many years of use we find most patients under anesthesia do better with oxygen out of all proportion to anything we so far know as the cause.

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THE DIAGNOSIS AND CURE OF GONORRHEA

A COMPARATIVE STUDY OF SMEARS, CULTURES, AND COMPLEMENT FIXATION METHODS *

By GEORGE W. HARTMAN, M. D., San Francisco
(From the Urological Department, Stanford University.)

The mooted question of the cure of gonorrhea seems by these investigations to be divided into two stages: (1) The cessation of infectivity, and (2) the subsidence of clinical signs and symptoms.

Many varying standards have been suggested for the determination of cure. Harrold bases his conclusions upon the cultivation of the gonococcus, provocative and serological tests. Fraser sets very reasonable and easily attained standards, including disappearance of symptoms, examination, observation, provocative vaccines and sounds, with a plea against overtreatment. Clarkson devises a very comprehensive set of tests. Rosenthal describes a set of tests which are well within the resources of anyone.

The British Medical Research Committee finds that "the stage has not yet been reached at which a diagnosis can be made with certainty. . . . by bacteriological methods alone."

The committee on medical research and laboratory questions of the all-American conference on venereal disease which met at Washington December 6 to 11, 1920, feeling the need of further scientific knowledge on the subject, urged the conference to encourage research work along the lines of diagnosis.

With the object of simplying the various criteria offered by the different observers and placing them on as nearly a measurable basis as possible, we attempted to devise practical standards. The material studied comprised several hundred cases of acute and chronic urethritis, the last 100 observations having been used for critical study.

The factors considered were history, appearance of smears stained by methylene blue, and the Gram method at two laboratories working independently, cultures on various media and the complement fixation tests. It is realized that for a test to be of great value it must be simple enough to encourage its frequent application. Everyone has noted elaborate tests offered for diagnosis, which are so com-

* Presented before the Urology Section at the annual meeting in Yosemite.

plicated as to render them not practicable for regular use.

It would appear that the presence of a few gonococci, apt to be overlooked in the examination of smears, could be vastly magnified by successful cultures. Until comparatively recently the cultivation of the gonococcus has been looked upon as an extremely difficult procedure, available only to the most skilful laboratory workers. Wheery and Oliver, however, discovered that the gonococcus can be grown well under reduced oxygen tension. This they accomplished by culturing B. Subtilis opposite the gonococcus, using top and bottom of Petri dishes. Schwartz simplifies this method, making the growth of the gonococcus almost as easy as that of any other organism. The method will be described later in detail.

Our method of attack was to start with frank gonorrheas in either sex, and, verifying this with stained smears, to persist until positive cultures were got in nearly all instances; having arrived at this point to determine at what time the gonococci could no longer be cultivated and combining with this the complement fixation tests. Finally cases at all stages were subjected to these tests.

ROUTINE

All smears were made in triplicate. If a spontaneous discharge was present, care was taken to wipe off that which was exposed and to insert the platinum loop well into the urethra or cervix. If there was no discharge, it was produced by gently stripping the urethra. In the male, if this produced no visible amount, the prostate and seminal vesicles were massaged.

All smears were spread on slides as thinly as possible, air dried and fixed by three rapid passes through the flame. It is of advantage to make smears at either end of the slide, thus saving time and slides.

If, upon staining with methylene blue, intracellular diplococci were found, a Gram stain was made by two laboratories working independently. The following technic for Gram staining was found satisfactory:

1. Stirling's gentian violet, one-fourth minute, wash with water.
2. Gram's iodine, one minute, wash with water.
3. Ethyl alcohol (95 per cent) until thoroughly decolorized—about two minutes, wash with water.
4. Safranine (approximately one part saturated alcoholic solution to seven parts of aqua distillata) one-half minute, wash with water.
5. Blot almost dry and heat gently to dryness.

For culturing, various media were tried. Hydrocele, pleural, ascitic, human blood and horse serum agar were used with apparently equally good results. We finally settled upon ascitic agar as the most easily obtained. The method of preparation of this is as follows:

Five hundred grams of fresh lean meat (veal or beef) is finely minced and thoroughly mixed with 1000 cc. of distilled water. This mixture is allowed to stand on ice for twenty-four hours. The liquor is then decanted and the remainder expressed through cloth, adding enough distilled water to make 1000 cc. Boil until the albumin of the meat infusion coagulates. Correct to an acidity of pH 7.6 by the use of N/10 NaOH. Titrate at close to 100° C., to eliminate effect of carbon dioxide. Boil again for a short time, filter and make up to 1000 cc. with distilled water. Add 10 grams peptone (Bacto. Diffco.), 5 grams NaCl (C. P.) and 20 grams agar, and boil until all is dissolved. Let cool to 50° C., add whites of three fresh eggs and clarify by filtration, or filter and refilter through absorbent cotton until media are clear. Tube the media and autoclave at ten pounds on three consecutive days. Melt the agar, cool to 50° C., add sterile hydrocele fluid in the proportion of 1 cc. of fluid to 2 cc. of agar. Slant and stopper with sterile rubber stoppers.

Cultures are made as follows:

The glans penis in the male or the tissue surrounding the urethra and cervix in the female are carefully sponged with mercury cyanide 1/1000, the platinum loop introduced well into the urethra and smeared over the agar slants, the operation being repeated.

This mode of inoculation gives discrete colonies, the identification of which is easier than when the liquid at the bottom of the tube is inoculated and the whole flowed over the surface. Culture medium is kept in the incubator before the inoculation, which insures its being sterile and at the best temperature at all times. If cultures are to be made away from the laboratory, the test tubes containing the medium are placed in hot water (98-100°) until thoroughly heated. After the inoculation they are kept warm until placed in the incubator. The oxygen tension is reduced according to the method described by Schwarz by rotating the test tube in the flame of a Bunsen burner until it has been thoroughly heated, stoppering it and placing at once in the incubator, which is maintained at 37.5° C.

Care must be taken that the tube be not heated sufficiently to crack it or to destroy the culture. Tightly fitting rubber stoppers are used, and if they happen to be moist, by observing the film between the stopper and the tube, one can sometimes detect air leaks as the tube cools. Failure to accomplish a suitable growth is sometimes due to these leaks and has been overcome in our experience by reheating the tube, which subsequently showed a luxuriant growth. Cultures are inspected at twenty-four and forty-eight hours; at the latter time they are usually ready for study. Criteria used in examining the cultures are the shape of the colonies, morphology of the organisms and staining characteristics, using standard gram negative and positive organisms for control.

TABLE NO. ONE

PER CENT OF POSITIVE FINDINGS IN KNOWN POSITIVES DURING ACUTE STAGE

No. Cases	History	Gram Stains No. 1	Gram Stains No. 2	Cultures	Complement Fixation	Other Findings
36	97%	83%	92%	58%	5.5%	
			Chronic Prostatitis of Gonorrheal Origin			
8*	100%	0	0	0	0	Pus cells and reduced lecithin in prostatic and seminal secretions.
			Re-examination of Former Gonorrheas			
15	100%	0	0	0	0	Cultures showed staphlococci, diptheroids and a gram negative bacillus.
			Non-specific Urethritis			
21	0	0	0	0	0	

* Including one stricture.

TABLE NO. TWO

TIME OF DISAPPEARANCE OF POSITIVE FINDINGS

Case No.	History	Smrs.	Citrs.	Complement Fixation	Notes	
76	Acute Urethritis Cervicitis.	5 Days	5 Days	XXX after 4 Days	C. F. Fluctuated between XX and XXX for 70 days; negative after 88 Days.	Diphtheroids and Staphlococci present.
83	Acute Anterior Urethritis	See Note		Always Negative	Disappeared in smears and cultures after 12 days; reappeared in smears after 20 days.	Staphlococci.
94	Chronic Anterior Urethritis	17 Days	17 Days	Always Negative	Urethral discharge still present.	Staphlococci.
2	Ditto	30 Days	30 Days	Positive at 24 Days; negative thereafter	Urethral discharge still present.	Staphlococci and Streptococci.
96	Ditto	31 Days	20 Days	Always Negative	Urethral discharge present after 54 days.	Diptheroids and Staphlococci.
14	Chronic Anterior Urethritis	37 Days	Never Postive	Always Negative	Urethral discharge still present.	Staphlococci
73	Acute Anterior Urethritis and Epididymitis	60 Days	60 Days	Always Negative	This case beyond observation between cultures.	Staphlococci.
23	Acute Anterior Urethritis	70 Days	58 Days	Always Negative	Auto infection following drinking bout.	Staphlococci and Diptheroids.
87	Ditto	45 Days	45 Days	Always Negative	This case beyond observation between cultures.	Staphlococci.
60		35 Days	33 Days	Always Negative		Staphlococci and Diptheroids.
88		Present, urethra and cervix after 35 days		Always Negative		Staphlococci and spore forming bacilli.
93		Present 124 days after 276 Days		Always Negative in spite of Vaccines	Infection of the Periurethral Glands.	Diptheroids and Staphlococci.

Table No. 1 contains the findings in the various cases.

In thirty-six, during the acute stage, 97 per cent gave positive histories. Gram negative intracellular diplococci were found in 83 to 92 per cent, depending upon the technician, or in 100 per cent if combined. Gonococci were successfully cultivated in 58 per cent. Complement fixation was positive in 5.5 per cent. In eight cases, including one of stricture, all search for gonococci by smears or cultures were negative, though the prostatic and vesicular secretions contained pathological amounts of pus and reduced lecithin granules. Bacteriologically, these contained staphlococci, small gram negative bacilli and diphtheroid bacilli.

Fifteen cases, apparently cured, on re-examination showed entirely negative findings except that bacteriologically they were as above.

Twenty-one cases of non-specific urethritis and vaginitis also showed the same organisms. All of these organisms were not present simultaneously nor in all cases.

Table No. 2 shows the time of disappearance of positive findings after the beginning of treatment. This varies in the smears from five to seventy days, with one case of littritis in which it has persisted for over 276 days.

In the cultures we have got successful growths up to 124 days after beginning treatment. The average time (excluding incompleted cases) for the disappearance of gram negative intracellular diplococci is slightly longer than that for getting successful cultures. In no instance with patients under treatment was it possible to get cultures of gonococci after the gram negative diplococci had disappeared from the stained smear. The complement fixation test (in this series of cases at least) was of little value.

Notwithstanding the fact, however, that cultures and smears were negative, the patients were definitely not cured. There were still heavy urinary shreds or urethral discharge or both present. This, perhaps, justifies our opening statement, that the cure should be divided into two stages.

There may be those who would say at this time that the patients are not infective. It has happened, in our observation, that patients have been completely negative to smear and culture and be-

come positive again. This was noted in case 83, which was negative as to smears and cultures in twelve days. After physical exertion the smears became positive again in twenty-six days, remaining so for days.

What it is that serves to perpetuate discharges from the anterior urethra or pus in the prostate or seminal vesicle after the disappearance of gonococci we are at this time not prepared to state, but it is suggestive that staphlococci were present in the majority of cases after disappearance of gonococci, as also in the non-specific urethritis cases in which no other pathology was found.

What, then, shall we place as the criteria for cure?

1. Absence of all urethral discharge.

2. Urines, 1, 2 and 3, free from shreds; or if they be present, the shreds free from pus cells. (The All-American Conference considers shreds not important if they float for at least two minutes after agitating the fluid.)

3. Frequency of urination normal with no nocturia.

4. Prostate and seminal vesicles normal to palpation and free from pus cells. Lecithin present in prostatic secretions in normal amounts.

In many instances it is virtually impossible to obtain the desired degree of freedom from pus cells in these secretions. Cessation of treatment followed by a normal sexual life for a few months will usually clear up these remaining pus cells.

5. As the patient is being prepared for dismissal, sounds should be passed to determine the patency of the urethra and for their therapeutic effect. If this is done gradually, it will not be followed by a discharge.

6. Discharge following silver nitrate, if any, negative microscopically and bacteriologically to gonococci.

7. Testicles, epididymes and vasa should be normal.

8. Physical exertion should not produce discharge; neither should the injection of vaccines.

Endoscopy immediately after cessation of treatment is apt to give unsatisfactory results, unless one bears in mind the fact that treatment over the delicate mucus membrane of the urethra, together with the preceding infection, is very apt to develop a picture susceptible of misinterpretation. In this, one finds varying degrees of congestion and alteration of the normal striations. During endoscopy, it is well to palpatate the entire surface of the urethra for spots of infiltration. Subsequent examinations at three, six, and nine months should establish the importance of any residual findings at previous examinations.

CONCLUSIONS

1. The cultivation of the gonococcus can be done as simply as that of any other organism, providing the medium is warmed before inoculating and kept warm until the oxygen tension has been reduced and the tube transferred to the incubator.

2. Ability to cultivate the gonococcus seems to disappear first under treatment, and seldom has reappeared. The finding of gram negative intracellular diplococci is the second factor to disappear; the subjective and objective findings persist very much longer, and the patient cannot be considered to have been cured until they have been entirely eliminated. Despite favorable comment in the literature, we cannot attach much more favorable conclusion to the value of the complement fixation test than those drawn by Krotoszyner in February, 1918.

PROPORTION OF PHYSICIANS TO POPULATION

State	Population (1920)	Physicians* (1922)	People to each Physician
Alabama	2,348,174	2,313—	1,015
Arizona	333,903	372—	897
Arkansas	1,752,204	2,303—	760
California	3,426,861	7,549+	454
Colorado	939,629	1,822+	499
Connecticut	1,380,631	1,727—	799
Delaware	223,003	265+	842
District of Columbia	437,571	1,924+	227
Florida	968,470	1,348+	718
Georgia	2,895,832	3,274—	885
Idaho	431,866	452—	956
Illinois	6,485,280	10,716+	605
Indiana	2,930,390	4,353—	673
Iowa	2,404,021	3,490—	689
Kansas	1,769,257	2,492—	709
Kentucky	2,416,630	3,155—	766
Louisiana	1,798,509	2,058+	874
Maine	768,014	1,067—	718
Maryland	1,449,661	2,349—	616
Massachusetts	3,852,356	5,977+	645
Michigan	3,668,412	4,653+	788
Minnesota	2,387,125	2,774+	860
Mississippi	1,790,618	1,792+	999
Missouri	3,404,055	5,827—	584
Montana	548,889	568—	966
Nebraska	1,296,372	1,913—	678
Nevada	77,407	140—	553
New Hampshire	443,083	615—	720
New Jersey	3,155,900	3,362+	939
New Mexico	360,350	399—	903
New York	10,384,829	16,857+	616
North Carolina	2,559,123	2,226—	1,149
North Dakota	645,680	517—	1,248
Ohio	5,759,394	8,086—	712
Oklahoma	2,028,283	2,600—	779
Oregon	783,389	1,158+	677
Pennsylvania	8,720,017	11,241—	775
Rhode Island	604,397	754—	801
South Carolina	1,683,724	1,368—	1,231
South Dakota	636,547	630—	1,010
Tennessee	2,337,885	3,228—	724
Texas	4,663,228	6,094—	765
Utah	449,396	497+	904
Vermont	352,428	556—	634
Virginia	2,309,187	2,503—	918
Washington	1,356,621	1,756—	772
West Virginia	1,463,701	1,751—	836
Wisconsin	2,632,067	2,772+	950
Wyoming	194,402	263—	739
Totals	105,708,771	145,966+	724

*The plus and minus signs indicate, respectively, an increase or a decrease in the number of physicians in the State since 1920.

EDITORIALS

RESPIRATORY STIMULANTS

A mere increase in respiratory rate does not fulfill the requirements of efficient ventilation in the lungs. This is strikingly demonstrated in the experimental hyperthermia of animals and in such clinical conditions as pneumonia, in which the respiration may be very rapid and shallow, but is accompanied by cyanosis and eventually results in severe asphyxia and death. On the other hand, it is well known from the original experiments of Loewy with morphin and those of Dreser with heroin that these drugs, in small or therapeutic doses, which slow or depress the respiratory rate, cause an improvement in ventilation This is achieved by a marked deepening of inspiration and expiration which compensates for the slowed rate, the volume output of each respiration being greatly augmented. Physiologically, the effects resemble those of section of the vagi, but in the case of morphin and heroin they are not produced through a blockage of the normal augmentor vagus impulses. Therefore, morphin and heroin, in therapeutic doses, despite their depressant effects, act as true respiratory (ventilatory) stimulants. In large or toxic doses, morphin and heroin, of course, greatly reduce the ventilation, and finally paralyze the respiratory center. From what has been said it follows that a correct appraisal of drugs acting on the respiration requires a consideration of their effects upon the volume as well as the rate.

Using these factors together as a criterion of respiratory stimulation, Meissner, of the Pharmacological Institute at Breslau, recently tested a large number of commonly used and other agents with interesting and practical results. The drugs were administered by inhalation, and by hypodermic and intravenous injections in rabbits previously treated with toxic doses of morphin, chloral, and veronal. That is, the tests were made on truly depressed or impaired respiratory mechanisms, conditions which, more or less, approximate those requiring the administration of respiratory stimulants in clinical practice. Of the agents given by inhalation, amyl nitrite, acetic acid and acetic ether were found to be fairly efficient. Subcutaneously, the best results were obtained with epinephrin, camphorated oil and allyl-nor-codein. It is important to note that ether, alcohol and strychnin, which are generally mentioned in clinical textbooks of therapeutics and of other clinical subjects as useful reflex respiratory stimulants, were found by Meissner to be inefficient when injected subcutaneously. Caffein, hypodermically, increased the rate of respiration very markedly, but proved to be deleterious by causing convulsions. This recalls the results of Pilcher on the deleterious, synergistic action of caffein in the alcohol narcosis of cats; that is, among cats previously alcoholized and then treated with caffein mortality was greater than among the untreated, alcoholized. The majority of agents used by Meissner, and when injected intravenously, were found to be very powerful respiratory stimulants. This method of administration, however, cannot be recommended for general clinical use because of the injurious effects from irritation and convulsions, which usually supervened. The only agent that was found to be free from deleterious actions, when injected intravenously, and yet was highly efficient, was allyl-nor-codein. Meissner found further that a judicious combination of certain narcotics, especially urethane, together with such powerful central stimulants as atropin and strychnin, when injected intravenously, mitigated the convulsant and side actions of the drugs and yet preserved their marked respiratory stimulant qualities. However, it may be doubted if this would be a safe procedure in man. Of course, if the patient is moribund, or as a last resort, this procedure, as also the injection of camphorated oil intravenously, which Meissner found to be highly efficient in rabbits, might be tried. Under such conditions the simultaneous administration of urethane or other narcotics would appear superfluous.

As far as camphorated oil, ether, and alcohol are concerned, the results of Meissner agree entirely with those reported some time ago by Hanzlik of the Department of Pharmacology at Stanford University, who used a somewhat different method of study, which, however, took into consideration the changes in rate and amplitude (volume) of respiration, and also the duration of action, as the index of respiratory stimulant efficiency. Hypodermic injection of cold water (2° to 20° C) as found by Hanzlik to be most efficient, and 95 per cent alcohol and water at 38° C were the least efficient. When the respiratory center was depressed with toxic doses of morphin, the most efficient stimulation was obtained from camphorated oil, much less from chloroform and water (2° to 90° C), and least from ether, injected subcutaneously. Strychnin, caffein, and atropin were found to be inferior to reflex stimulants for both the untreated and morphinized respiratory centers, although strychnin and atropin were more efficient for the morphinized than for the untreated center.

Thus it is seen that two investigators, working independently, agree rather closely regarding the activity and usefulness of a number of agents commonly used as respiratory stimulants. According to these reports, it would appear that ether, alcohol, chloroform, and strychnin leave much to be desired as compared with the more efficient camphorated oil, cold water, and allyl-nor-codein. Although it is not possible to transfer these results directly into clinical practice, clinical opinion agrees partly, at least, as regards the inefficiency of ether, alcohol, and chloroform as respiratory stimulants.

However, it should not be necessary to depend upon opinion, for tests of respiratory stimulant efficiency based on considerations similar to those employed in experimental investigations can be quite as readily carried out on human subjects as on animals. Until such studies have been made clinically it would be better to be guided by the experimental evidences than by opinions and guesses. The importance of the subject is recalled from the

need of efficient respiratory stimulants in such conditions as pneumonia, meningitis, coma (uremic and diabetic), in accidents of anesthesia and operations, in poisoning from narcotics (morphin, choral, veronal, sulfonal, etc.), and in other conditions in which respiration is endangered, especially in pediatric practice.

Loewy, A.: Arch. ges. Physiol., 1890, 47: 601.
Dreser, H.: Arch. ges. Physiol., 1898, 72: 485.
Meissner, R.: Zeit. f. d. gesamte exp. Med., 1923, 31: 159.
Pilcher, J. D.: J. Pharm. Exp. Therap., 1912, 3: 19.
Hanzlik, P. J.: J. Pharm. Exp. Therap., 1923, 20: 463.

THE BUGABOO OF THE SHORTAGE OF PHYSICIANS IN RURAL COMMUNITIES

Some time ago someone alleged the shortage of physicians in rural communities as an excuse for extending the practice of medicine to those who were not prepared by education or otherwise to assume the duties of physicians. For quite a while no one took the trouble to investigate the facts, and all the raft of people who want to be "doctors" without proper education began to use the statement as an excuse for their existence.

This bugaboo grew so rapidly and to such proportions that in some places it is reported that nurses carried with them prescriptions signed in blank by accommodating doctors and when they visited a patient they could both prescribe and serve as nurse.

We are now beginning to see the facts. Report after report from investigators in different States all show that the rural medical service problem is a small one and is not due to a shortage of physicians but to the same facts that prevent isolated small centers from enjoying fine local theaters, fine high school buildings and other expensive facilities economically possible only to larger groups.

There are 150,000 educated physicians in the United States, or approximately one to each 800 of population. New York has a physician to each 680 people and, although the bugaboo of shortage of doctors thrived more in that State than elsewhere, a recent careful survey shows the problem to be largely in the minds of those who wish it so.

This same story was started by the same interests in California, but was promptly exploded. California has more physicians to population (one to 508) than any other State and more than any other country in the world. There is in the State no serious problem of shortage of physicians, unless we expect each family to have its own pet doctor. San Francisco has an educated physician to each 400 inhabitants; Los Angeles is about the same.

If all the sick people in the State patronized only educated physicians, and if every clinic in the State were suddenly abolished, the doctors of the State would have an average of some five patients of all classes a day each. About one per cent of the adult population of the State is engaged in "curing" or "preventing" disease.

THE AMERICAN MEDICAL ASSOCIATION SESSION

At this writing the seventy-fourth annual session of the American Medical Association is in its closing day in San Francisco. The registration has been the largest of any meeting held on the Pacific Coast; the program has been unusually interesting and attractive; the exhibits have been numerous and well displayed in the large Civic Auditorium; publicity has been excellent, and apparently all the national officers and delegates, as well as our California Fellows, have a right to feel pleased over the accomplishments of this convention.

The social features have been such as to occupy all the spare time of the delegates and guests. The atmosphere of the meeting has been of the best, and we feel that everyone will look forward to another meeting to be held in San Francisco.

A more complete report of the session of the American Medical Association, as well as that of the State association, will appear in the August number of the Journal.

CERTIFICATE OF MERIT TO THE LEAGUE FOR THE CONSERVATION OF PUBLIC HEALTH FOR ITS SCIENTIFIC EXHIBIT

The committee on awards for the scientific exhibit of the American Medical Association has awarded a certificate of merit to the League for the Conservation of Public Health, in the following words:

"The committee recommends that the League for the Conservation of Public Health of California, for the exhibit relating to hospital betterment, better health service, the State campaign for high standards of medical practice, and for the improvement of laws relating to preventive medicine and the prevention of legislation that would lower the standard of health and retard the progress of medicine."

Sudden Acute Pain in the Shoulders Associated With Acute Pelvic Pain in Women—I. C. Rubin, New York (Journal A. M. A., April 14, 1923), reports two cases in which sudden acute pain in the shoulders was associated with acute pelvic pain in women, and describes this pain as a symptom of ruptured ectopic pregnancy, indicating subphrenic blood extravasation (subphrenic hemoperitoneum). The mechanism by which these shoulder pains in subphrenic pneumoperitoneum are produced is said to depend on the relations between the diaphragm and the suspensory ligament of the liver. When gas displaces the diaphragm upward, the liver is simultaneously displaced downward. The falciform hepatic ligament is consequently stretched, and thus the phrenic nerve is stimulated. As the phrenic nerve has its origin in the third, fourth and fifth cervical cord segments, and as it actually connects with cervical peripheral nerves supplying the shoulder girdle, pain produced in the diaphragmatic area is referred to the shoulders by sensitized cutaneous nerves of the cervical segments. The first case cited by Rubin was one of bilateral shoulder pains, more intense in the left shoulder in which the pains were caused by a ruptured tubal pregnancy on the left, with a large amount of extravasated blood. In the second case severe pain in the right shoulder was caused by a tubal abortion on the right and moderate blood extravasation.

COUNTY NEWS

CONTRA COSTA COUNTY

Contra Costa County Medical Society (reported by L. St. John Hely, secretary)—The regular monthly meeting of the Contra Costa County Medical Society was held at the Abbott Emergency Hospital Saturday evening, May 26.

The paper of the evening was given by Stewart Irwin of Oakland on the use of insulin. We were very grateful to Dr. Irwin for the privilege of hearing authentic news from insulin, as all the information we had was from scattered articles in the medical literature, but in this case we were getting information from a reliable member of the profession and one that has had the actual experience. Those present were: Miss Agnes Driscoll, proprietor of Cottage Hospital; Miss Yaub of the Cottage Hospital; Miss Plummer, Dr. and Mrs. C. R. Leech, H. N. Belgum, J. T. Brenerman, P. C. Campbell, U. S. Abbott, Denninger-Keser, G. M. Bumgarner, John W. Bumgarner, medical student; C. L. Abbott, H. L. Carpenter, Walter Smallwood, E. R. Guinan, M. L. Fernandez, L. St. John Hely.

MERCED COUNTY

Merced County Medical Society (reported by Brett Davis, secretary)—The regular meeting was held June 7 at Merced. Present: Davis, Mudd, Parker, Lilley, Fountain, McDaniel, and Lee S. Seward of Ahwahnee.

Dr. Seward gave a talk on tuberculosis. F. W. Parrish has removed to Antioch, and was granted a dimit to the Contra Costa County Society. G. S. Scott has sold his practice in Mariposa to J. L. McDaniel of Hornitos, and has moved to Santa Cruz. Dr. Trick has moved from Los Banos to Dos Palos. Frank W. Yocom from San Francisco has entered the practice of medicine at Livingston. Dr. Seward was admitted as a new member. H. Kylberg of Merced Falls will return to Merced July 1 to practice medicine and surgery.

The new Mercy Hospital building is fast being erected in Merced, the tile and framework of the first floor being well advanced.

SAN DIEGO COUNTY

San Diego County Medical Society (reported by Robert Pollock)—The meeting of the San Diego County Medical Society for May 22 featured two papers: First, Dr. Harvey Stallard, "Incorrect Sleeping Postures in Relation to Teeth." This paper was well illustrated by lantern slides which substantiated the points brought out in the text of the paper. The paper showed the various types of malocclusion, which he grouped into three classes: (1) Incisors bunched; (2) The upper jaw protruding; (3) The lower jaw protruding beyond the upper. He then showed how sleeping postures might have causal relationship to various types of malocclusion even when this defect was bilateral. He showed in his pictures children and also adults who sleep with a fist or a pillow crowded against the cheek causing a lingual deviation from the normal tooth position affecting the molars and bicuspids of that side. He also showed the effects of thumb-sucking habits in crowding forward the upper incisors.

The paper was discussed by Newman, Sharp, and Stallard.

The second paper was read by Robert Pollock: "The Influence of Metabolism on Tooth Structure." In this paper he brought out the facts that the deciduous teeth were laid down by the second month of fetal life, and that the permanent teeth were forming in early infancy. Therefore, in order to effect tooth structure, proper diet must be considered for the mother before conception and during gestation. Calcium, phosphate, and vitamines A, B, and C are essential in ample quantity. Oral hygiene is important, but impairment of tooth structure comes from within, and oral hygiene will not prevent caries in teeth not properly laid down. This paper was illustrated by lantern slides showing the effect of diets deficient in vitamines, proteins, and fats on the growth of young animals. The paper was discussed by Churchill, Sharp, and Harvey Jackson. At the close of these papers Hoover presented an interesting case of erythema nodosum.

The meeting of June 26 was canceled, in order that members might attend the State and A. M. A. conventions in San Francisco.

SAN FRANCISCO COUNTY

San Francisco County Medical Society (reported by J. H. Woolsey, secretary)—During the month of May the society held five meetings—a meeting of the Committee on Medicine on May 1; a general meeting on May 8; a meeting of the Committee on Surgery on May 15; a meeting of the Committee on Eye, Ear, Nose, and Throat on May 22, and a meeting of the Committee on Urology, May 29. A full program was presented at each of these meetings. Abstracts of papers presented and discussions that have been received by the Journal are:

The Treatment of Diabetes With Insulin. By W. D. Sansum of Santa Barbara.

Following a brief account of the discovery of insulin, Dr. Sansum presented, by means of charts, a brief summary of the results obtained in the treatment of the first 100 cases of diabetes with insulin. In this series were sixty patients whose disease had reached that degree of severity where they could no longer be kept continuously free from sugar and acidosis on any diet. With two exceptions, all of these patients were not only kept continuously sugar-free and free from acidosis, but they were maintained on diets high enough to warrant a continuous gain in weight, some of the patients having gained as high as forty pounds. In this series were two patients who had recovered from coma. Three patients who were seen late in their comatose condition did not recover. The essential points in the treatment of diabetes with insulin were summed up as follows:

The Essential Points in the Treatment of Diabetes With Insulin

In the treatment of diabetes, there are three objects to be attained.

1. The patient should be kept continuously free from sugar in the urine, and the blood sugar should be normal.
2. The patient should be kept continuously free from acidosis.
3. The patient should be nourished as evidenced by a satisfactory weight.

These conditions may be fulfilled, in many instanes, by careful dietary procedures, although when a patient's tolerance is very low, continuous bedrest is necessary to avoid a serious loss of weight. If the disease becomes progressively worse, as it usually does in severe and untreated patients, a stage is finally reached when the patient can no longer be kept free from sugar and acidosis even if the most careful attention is paid to the diet and the patient is kept continuously in bed. Many patients wait too long before beginning careful dietetic management and are, therefore, not given a fair chance to do the best work.

By the use of insulin the death rate from diabetes may be reduced to zero, and patients who would otherwise remain chronic invalids may be restored to health by ample diets in proportion as this specific extract becomes available. It is not a cure for diabetes. Patients will need to exercise greater care than ever with their diets, but since these diets will be ample for their needs, they will be fully repaid for the additional efforts.

In the treatment of diabetes with insulin, there are four conditions that should be satisfied:

1. The sugar-burning or utilizing power of the insulin in grams per cubic centimeter should be known.
2. The patient's natural tolerance should be determined in grams of sugar-formers.
3. The exact value of the proposed diet should be known.
4. The dosage of insulin may then be adjusted to make up the difference between the sugar-formers of the proposed diet and those of the patient's natural tolerance.

The sugar-formers of the diet designated by "G" are 100 per cent of the carbohydrate, 58 per cent of the protein, and 10 per cent of the fat. It has long been known that all starches are changed into sugar during the process of digestion. When the protein molecule is digested it is split into proteoses, peptones, and eventually into amnio acids. Some of the amnio acids may be changed into sugar while others may be changed into fatty bodies. The neutral fats are the glycerolesters of fatty acids. Glycerine is a sugar-former. The reduction of food values and tolerances to the common denominator sugar-formers very materially simplifies the calculations.

1. The sugar-burning or utilizing power of the insulin should be accurately known. Eli Lilly's iletin is evaluated in rabbit units. Their units have a very constant value, since they use between 300 and 400 rabbits in the standardization of each lot. In our experience, each unit is worth a little more than 1 gram of sugar-metabolizing power. Their H-20 product which indicates twenty rabbit units in each cc. has a sugar-metabolizing power of 25 grams.

2. The patient's tolerance may be determined by diet alone or by diet plus insulin. When diet alone is used the patient is desugarized by partial starvation. When sugar-free, diet additions are gradually made, a diet is eventually found upon which the patient can remain continuously free from sugar in the urine and with a normal blood sugar. Suppose such a diet contains 35 grams of carbohydrate, 38 grams of protein and 83 grams of fat. The sugar-formers of such a diet are 100 per cent of 35, plus 58 per cent of 38 plus 10 per cent of 83 or 35 plus 22.04 plus 8.3 or 65.34 grams. We would say that such a patient has a natural tolerance of 65 grams of sugar-formers.

In the terminal stages of diabetes, patients do not endure starvation well, both because of the existing acidosis and their already marked emaciated condition. Many of them cannot be desugarized by any dietary procedure, since their natural tolerances are too low to permit of even bed-rest maintenance diets. In such cases, tolerances may be determined by diet plus insulin. If the acidosis is not too severe, a patient may be given a bed-rest maintenance diet similar to the above which contains a little more than 1000 calories, with 65 grams of sugar-formers. Small doses of insulin are given at first. The insulin is gradually increased until the patient is continuously free from sugar. Suppose that it requires 60 grams of assistance in the form of insulin to carry the above diet. The patient's natural tolerance would then be 65 less 60 or 5 grams of sugar-formers.

If the patient has a severe acidosis, no attempt is made to measure the patient until the acidosis is controlled. We control the acidosis by giving the patient a diet rich in carbohydrate, low in protein and as free as possible from fat, such as an oatmeal, skimmed-milk diet, using comparatively large doses of insulin which, as it metabolizes the carbohydrate, will in turn metabolize the fat and thus dissipate the acidosis.

3. The exact value of the proposed diet should be known. We consider 80 to 100 grams of protein as ample for the needs of an adult. In adjusting the fat we have followed the formula of Woodyatt's optimal diets, never letting the fat actually oxidized exceed two times the carbohydrates plus one-half of the protein. Following this plan, a diet "G" of 65 will carry approximately a 1000 calorie diet, and a diet "G" of 120 will carry a 2000 calorie diet.

4. The adjustment of the dose. Suppose that the natural tolerance of a patient, as determined either by diet or by diet plus insulin, is found to be 65. Suppose that the proposed diet contains 133 grams of sugar-formers. The patient will need 133 less 65 or 68 grams of assistance. Sixty-eight divided by 25 will then equal the number of cc. of the Lilly iletin required, or 2.7 cc. In our experience we have found that in the majority of patients, with an equal distribution of food between the three meals of the day, that five-eighths of the total dose should be given before breakfast, and three-eighths before supper. In this instance we would give 1.7 cc. before breakfast, and 1 cc. before supper.

Walter C. Alvarez of San Francisco discussed the subject of "When Does It Pay to Remove Adult Tonsils? Conclusions derived from the study of 350 cases."

Alvarez reported the after results in over 250 adult tonsillectomies. Seventy-six per cent of those who had had much tonsillitis got good results and, 82 per cent of those who had never had much tonsillitis failed to be benefited. These statistics show that it pays best to remove tonsils for tonsillitis and sore throats. As a general rule it does not pay to remove them simply because they are a little large or because they have cheesy plugs. A tonsillectomy should never be done with the hope of curing a generalized disease, until a careful physical examination has been made.

At the Eye, Ear, Nose, and Throat Section meeting (reported by F. C. Cordes, secretary), E. C. Sewall in charge of the meeting, Leo Eloesser presented a case of carcinoma of the larynx treated by laryngectomy, according to Gluck with a combined tracheotomy. The result was excellent, the patient after a year's time being able to talk in a loud whisper. The points of interest brought out were that the breath sounds were very faint and that in sectioning the trachea a diagonal section was preferable so as to avoid as much as possible a stricture.

R. Ashley presented a case of a carcinoma of the gums in a woman who previously had been operated on for an abdominal tumor. It was brought out that the tumor probably had no relation to the abdominal mass.

J. Bacher presented several cases of simple mastoid operation, one of them a case of facial palsy that cleared after operation. There were signs of destruction of the labyrinth, the caloric tests being absolutely negative.

In the discussion, Graham felt that one could not say at that time that the labyrinth had been destroyed. He had a case that had deafness and the signs of destruction of the labyrinth, and yet after a lapse of three years there was hearing on that side, together with reactions to caloric tests. Must be careful before any radical procedure is followed relative to the labyrinth. He felt that chronic suppurative ears do not necessarily destroy the labyrinth, and that the function may return, even though it is apparently dead.

A number of eye cases were presented by W. F. Swett. Two brothers, age 9 and 10, both had congenital subluxation of the lens of both eyes. The eyes, in addition, showed other congenital defects. A laborer, age 67, reported to the clinic, complaining of gradual loss of central vision in the left eye. Examination showed the right eye to be negative. The left fundus showed a slate-gray oval slightly raised patch in the macular region. By the direct method there was a prominence of three diopters. A final diagnosis of sarcoma of the choroid was made. Another patient was shown that had in the left eye glaucoma complicated by

thrombosis of retinal veins, together with intraocular hemorrhage.

Another patient, age 4, came with the history that her parents observed that, from the time she was able to walk, she was always getting hurt on the right side (evidence of defective vision). Has never complained of the eye, which has in addition never been inflamed. There was no history of trauma. Examination of this right eye showed a yellowish white concave disc-like mass or membrane extending across anterior third of globe, covering the whole central region except for a small, oval area on the external nasal side, in which is seen a yellowish gray, highly vascular mass. Transillumination shows the interior of the eye to be evenly illuminated throughout. Studying the mass from in front with a dilated pupil and a concave mirrow shows various phenomena at different angles. At certain angles the mass is seen to be semi-transparent, with layers of media of different refractive index behind which a red reflex and a few retinal vessels could be seen. One has the feeling that he is looking through medias of varying density and not a tumor mass. A diagnosis of pseudoglioma was made and enucleation advised on possibility of malignancy, which cannot be excluded. In the discussion, H. Barkan told of a similar case in which enucleation was advised and done, and where the tumor mass was mesoblastic tissue. He felt that if any signs of inflammation were present that it was not a glioma.

F. Cordes related the case of a five-year-old boy with a similar mass that, on sectioning and microscopic study, showed the tumor mass to consist of detached retina that had been matted together. In his case the history followed a previous meningitis. O. Barkan felt that daily tonometric readings were important, and that the eye should be enucleated at the first sign of increased pressure. H. Cohn questioned the possibility of a cyst.

Swett, in closing, felt that the mass was too far forward to be a cyst. He also questioned if the prognosis was sufficiently good in the event of glioma of so long standing to warrant enucleation.

O. Barkan presented three cases. The first, a case of recurrent ulcers of the cornea, the patient a man of 57, had been treated elsewhere in 1921 for corneal ulcers of the right eye. Within the space of two months, in spite of daily treatments, conjunctival plastic and optical iridectomy, vision had been reduced to counting fingers at ten feet. In July, 1922, patient consulted O. Barkan with a similar affection of the left eye; a small ulcer near the external limbus with a faint gray progressive margin gradually proceeded toward the center of the cornea. resisted all forms of treatment except cautery with the Shahan thermophore at 180° F. Application of the latter on three different occasions finally stopped progression about six months after onset of condition. Shortly thereafter ulceration recurred on the nasal cornea. All previous internal and special examinations had been negative. On recurrence of ulceration the tonsils were removed, following which the eye became pale for the first time in eight months. Further observation will show how much of a role, if any, the tonsils played.

In the discussion, E. C. Sewall related a case of dendritic ulcers of the cornea that recurred for many years and which was finally permanently cured by ethmoid operation. O. Barkan also presented two cases of traumatic subluxation of the lens with glaucoma. In one the glaucoma had been relieved by cyclodialysis and the other was to be operated on by the same method. Hans Barkan showed a collection of books from the Library of the History of Medicine of Stanford University. These books dealt with ophthalmological subjects and included the original volumes of works of Bartich, Beer, Daviel, Javal, Bowman, Desmarresm, Scarpa, Ammon, Maitre-Jan and Wentzel. The one of Bartich especially, published in 1500, is full of the most beautiful copper plates illustrating the then prevalent ideas of the anatomy of the eye and operative proceedings. Beer's volume showed his original methods of cataract-operating. The remaining books were most interesting because of their old and rare illustrations and the curious conception of certain anatomical and operative incidents. These books represent only a very small part of the books dealing with the history of ophthalmological science and only a small fraction of the general library on the history of medicine, which consists of from 5000 to 6000 volumes and contains works in Arabic, Hebrew, Latin, Greek, and the older forms of German and French. A number date back to 1432 and 1497, while the majority are from the sixteenth and seventeenth centuries.

St. Joseph's Hospital Staff Meeting—At the meeting of June 13 Albert Rowe spoke on "Practical Insulin Therapy." An "Eye, Nose, Ear, and Throat Night" was the feature on April 11. C. O. Southard and Roy Parkinson discussed the symptoms in eye and throat diseases in their relation to general medicine. At the May meeting "Diagnosis" was discussed by C. E. Taylor and William Quinn. J. M. Wolfsohn and P. K. Brown also took part in the discussion.

Case records were presented at these meetings by R. M. Berndt (acute osteomyelitis of tibia), O. Laist (carcinoma of ovary), A. S. Musante (gas phlegmon), J. Stowell (hypernephroma), W. T. Cummins (carcinomatosis), Anna Lyle (appendicitis and hydrosalpinx), J. D. McAlpin (Vincent's angina), A. Nagy (pneumonia), and T. Janes (peritonitis), J. T. O'Brien (diabetes mellitus). These were discussed by C. E. French, D. Stafford, W. A. Blanck, G. H. Becker, L. Crow, H. Deering, C. E. Nixon, and H. Wright.

R. Grant reported upon the purchase of books for the library and the donation of volumes by Ethan Smith and R. Parkinson.

A rule has been unanimously adopted that patients shall have records of their histories and physical examinations, excluding vaginal, made by the interns and externs, if the same have not been recorded by the attending physicians twenty-four hours after admission.

St. Joseph's Hospital record has already appeared in May and June and covered the increasing activities of the institution, including the appointment of staffs, formation of a women's auxiliary, A. M. A. convention diagnostic clinics, accrediting of St. Joseph's Hospital by the A. M. A., graduation of nurses, appeal for more student nurses, and staff and other hospital items.

Apparatus for giving oxygen has been installed on each floor. A gas and oxygen outfit has been added to the obstetrical department.

SAN JOAQUIN COUNTY

San Joaquin County Medical Society (reported by H. S. Chapman, secretary)—The regular meeting of the San Joaquin County Medical Society was held May 3, at the Receiving State Hospital, Stockton, with Dewey Powell presiding. Those present were Dewey Powell, Dozier, Haight, McDonnell, McGurk, Thompson, English, Barton Powell, Harry, Tuggle, McCoskey, Hull, Peterson, Margaret Smythe, Blackmun, Holliger, Counzelman, Fred Clark, Walker, Barnes, Ray, and Chapman.

The speaker of the evening was Albert H. Rowe of Oakland, whose subject was "Insulin Treatment of Diabetes."

Following this brief history of the development and preparation of insulin, many interesting slides and case histories were shown, explaining the use of insulin and absolute necessity of dietetic measures along with insulin. Dr. Rowe stated that the mild cases of diabetes did not need insulin, that the dietetic measures would do. He also stressed the necessity of making differential diagnosis between diabetes mellitus, and renal diabetes. He also stressed the necessity of insulin in cases of coma, acidosis,

and children with diabetes. The paper was by far one of the most interesting and enlightening one that was given to the San Joaquin County Medical Society for some time, and the members greatly appreciated the talk and were vitally interested in the subject.

SANTA BARBARA COUNTY

Santa Barbara County Medical Society (reported by A. C. Soper Jr., secretary)—The regular meeting was held Monday, June 11, at Cottage Hospital, President Means in the chair. Guests present were James F. Percy and William H. Kiger of Los Angeles, Paul of the County Hospital, Lenker of San Bernardino, Interns Koetter, Cryst, and Isaacs.

James F. Percy of Los Angeles gave a paper on "A Consideration of the Modern Phases of the Treatment of Cancer." Discussed by Kiger, Ullmann, Pierce, Brush, Nuzum, Schurmeier, and Rexwald Brown.

SONOMA COUNTY

Sonoma County Medical Society (reported by N. Juell, secretary)—A meeting was held June 14 at Santa Rosa with twelve members present, thirteen absent, and three visitors.

Cuthbert M. Fleissner was admitted as a new member. R. M. Bonar delivered a very interesting address on the "Insulin Treatment of Diabetes."

STANISLAUS COUNTY

Stanislaus County Medical Society (reported by R. E. Maxwell, secretary)—The meeting of Stanislaus County Medical Society was held at Waterford, May 11, with the following members and their wives present: B. F. Surrhyne, J. W. Morgan, C. R. Finney, A. M. Field, E. F. Hagedorn, F. R. McKibbon, R. E. Maxwell, C. B. Benson, E. R. Reamer, R. S. Hiatt, E. R. McPheeters, G. Chipman, J. R. Hosmer, C. I. Bemis, Walter Smith.

J. K. Morris was elected to membership.

Following the dinner, Albert H. Rowe of Oakland gave an interesting paper on "Diabetes" with respect to its treatment with insulin.

On June 8 the society met at dinner at the Turlock Club, Turlock, with the following present: Walter Smith, F. J. Peter, E. R. McPheeters, J. K. Morris, R. E. Maxwell, E. F. Reamer, F. R. McKibbon, E. F. Hagedorn, C. E. Pearson, J. L. Collins, N. G. Chipman, C. E. Finney, B. F. Surrhyne, Albert Julien.

After reports of committees, Julian Wolfsohn of San Francisco gave a paper on "Sleeping Sickness or Lethargic Encephalitis."

The Game of Psychoanalysis—Of psychoanalysis it may be said literally, at least in one sense, that it is such things as dreams are made of. Some of us may be tempted to expand the sense of stuff to the significance of stuff and nonsense. But it is more moderate, and more exact, to say that this new scientific notion, like many such notions, divides itself into a smaller element, which may in a more serious sense be called stuff, and a much larger element which might more correctly be called stuffing. Psychoanalysis can no longer be dismissed as a fad; it has risen to the dignity of a fashion, and possesses all that moral authority and intellectual finality which we associate with a particular pattern of hats or whiskers. It stands now in the open street, visible to the man in the street, like some florid and magnificent tailor's dummy outside a tailor's shop. And it is borne in upon me, as a humble passer-by, that it is time that somebody kicked the stuffing out of it.—Gilbert K. Chesterton, the Century, May, 1923.

Nevada State Medical Association

HORACE J. BROWN, M. D., Secretary Nevada State Medical Association, Associate Editor for Nevada

The next annual meeting of the Nevada State Medical Association will be held September 28, 29, and 30.

We are still anxious to hear from those of our members that wish to read papers at our annual meeting, and the secretary is going to be plumb discouraged if somebody doesn't speak up pretty soon. We feel sure that the meeting this year will be as successful as the one last year, and we look for a much larger attendance, but we would like to see the names of about twelve of our own members gracing the program. Every physician is entitled to an annual vacation, and they owe it to themselves, as well as to their patients, to take one. September 28, 29, and 30 will come at the best time of the year for you to get away, so why not plan to attend our meeting as a start for your vacation. We guarantee that any Fellow that comes to the meeting, and stays awake, will return home with a lot of new ideas that will make him more valuable to his patients. And it will probably sweeten his disposition so much that his wife will give up her intention of shooting him, and try to put up with his foolishness for another year. We hope that if your wife sees this she will ask to see your membership card, and if you haven't one for 1923 that she will make you send a check for $5 to the secretary right away. We know you have good intentions, but they don't help the treasury any, and the old sock needs lots of replenishing in order to put over that barbecue picnic in the right style.

CHANGES IN THE HARRISON NARCOTIC REGULATIONS AND FORM 679

By Hugh O'Connor,
Former Chief Deputy, Narcotic Division, First California Internal Revenue District

In accordance with Treasury Decision 3426, approved January 12, 1923, a change has been made in Article 117, which should be of special interest to physicians and druggists and which at the same time does away with a lot of needless worry on the part of the patient and his relatives.

The change has to do with the physician prescribing for an incurable disease such as cancer, advanced tuberculosis or any other of the diseases well recognized as coming within this class. It will be remembered that, under regulations heretofore existing, the prescribing physician was required to write upon the prescription the name of the incurable disease and any other historical data tending to throw light upon the use to which the contemplated purchase of narcotics was to be put. In other words, it required the doctor to write a death warrant on every prescription when called in to prescribe in any one of the cases of incurable diseases.

So, too, in the case of the attending physician prescribing for an aged and infirm addict, whose collapse from the withdrawal of the drug would result in death. In such cases the physician was wont to indorse upon the prescription that the patient is aged and infirm, giving the age, and that drug is necessary to sustain life.

But that was the old method and not infrequently tended to hasten the grief to a patient's immediate family, as well as to the patient himself, and acted as a continual reminder that the case was well nigh hopeless.

The more practical and up-to-date method is the one embodied and contemplated by the change outlined in Treasury Decision 3426. Under it the department permits the use of code to indicate the disease for which prescription is being made.

Thus, in cases of incurable diseases where a large amount of narcotics is sometimes prescribed, the new change permits the following notation to be made instead of the exhaustive information heretofore required to be placed on the prescription:

Exception (1), Article 117

This is the code for incurable diseases, such as cancer, advanced tuberculosis, and other diseases well recognized as coming within this class.

The advantages of this procedure are so apparent that they need not here be outlined for the druggist and the physician who has had experience under the method of dealing in these prescriptions. Under the new, the patient is not continually reading his plight, nor is he forever confronted with an eternal nightmare opening to him the vista of an early grave.

In cases of old age and infirm addicts where the drug administered is to sustain life, the notation: Exception (2), Article 117, is sufficient to comply with the new amendment.

Taken as a whole, the amendment absolves the prescribing physician from the necessity of putting a lot of information on his prescription that he deems to be confidential and which, in the opinion of all doctors, is not good for the patient, because of his delicate condition, to see.

Numerous instances are within the writer's memory of prescribing physicians tactfully keeping the patient in the dark as to the true nature of his incurable disease, even though it appeared at the time to be a violation of the old regulations requiring full and complete data pertaining to the incurable disease to be placed on the prescription. Here is how it has been done.

The patient calls upon his doctor, and unknown to himself, perhaps, he is suffering from an incurable disease well recognized as coming within the usual class. The doctor hesitates to place the full facts upon the prescription, as regulations then required him to do. He was loath to write to the plain view of his patient the inevitable death sentence.

The doctor steps into another room and rings up the Narcotic Division of the Internal Revenue for advice as to how he should proceed in a case of this kind. The only humane thing to do was to advise the physician to omit the designated name of the affliction, and to give the patient the prescription for the narcotic drugs essential to the proper treatment of the case. The patient departs. It is an easy matter for the doctor to immediately communicate with the druggist, advising him to fill the prescription upon presentation, and that he (the doctor) will be down at once to write in the necessary data and information which the old regulations under the Harrison Narcotic law exacted.

It can be seen at once that the new amendment does away with any such procedure, however commendable it was under the old method. Now, if doctors take advantage of this new form under the late regulation of indicating the exemption, they will have an opportunity of dealing with their patients a great deal more confidentially than was the case under Article 117 before Treasury Decision 3426 was approved and issued.

In Article 119, there is also recorded a noteworthy change. The second paragraph of the article of the revised regulations is now amended to read as follows:

"The druggist who fills a prescription must preserve the prescription for a period of two years from the date indicated thereon."

This mandatory provision eliminates the necessity of procuring the signature and address of the party receiving the prescription, on the back thereof, and at the same time does away with any and all of the following questions druggists used to puzzle over before Article 119 was revised:

"The patient is unconscious, can I get anyone in his place to sign it?"

"Can the delivery boy sign when he takes it out of the store?"

"Can the stage driver sign when he takes it out into the country?"

"Can the clerk in the hotel or janitor in the apartment house sign for the narcotic prescription?"

These were but a few of the perplexing questions confronting the druggist prior to the new amendment. Now the druggist has only to remember that NO signatures nor addresses of the parties receiving the prescriptions are required in order to comply with the Harrison Narcotic Law.

Article 148 pertaining to exempt preparations is amended by striking out the word "signature" and substituting therefor the word "name" both in the fourth sentence thereof and in the heading of the second column of the form therein prescribed of record to be kept by retail dealers.

In other words this means that the druggist is now no longer required to obtain the signatures in cases of sales of exempt preparations. It will be sufficient for him to procure the names and addresses of the purchasers and write them in himself.

No separate form is provided by the Government but any druggist or seller of exempt preparations can use as a model the Form appearing on Page 60 of Regulations 35 by merely substituting "Name of Purchaser" for "Signature of Purchaser" and thereby comply with the regulations as lately amended.

Form 679, styled "REQUISITION FOR BLANK ORDERS," has also been changed. From the size of an ordinary business card it has been enlarged so that now it is practically the size of Form 678, which the registrant uses for his annual registration.

Among the improvements of the new form as enlarged over the old, is a space provided for "Order Forms Issued," "Date of Issue," "Numbers of Order Forms Issued to Registrant" and "Classes Registered In." It will be remembered that in the other forms no such provision was made for this added information.

More space has also been alloted to "Signature of Purchaser." The blank for the insertion of street and number, city or town or state is more than ample and a decided improvement over the old form.

Only one book is allowed on each requisition unless the party is registered in Class 1 or 2. Because of this fact a suggestion to druggists will not be amiss at this point. To insure having the necessary forms it would be advisable to secure a few of the Form 679 for yourself and the doctors as well. Fill one of them out and place it in your order form book at about page seven or eight. When you come to it in due course of business fill in the date and mail it to your local Internal Revenue Office with a remittance of ten cents, the price of one book. This procedure will insure your having a new book before your old one is used up.

Impress this on the doctors you come in contact with, and remind them when you find their last pages of requisitions coming in for narcotics, to set about replenishing their supply of order forms.

The druggist is still required to keep narcotic prescriptions on a separate file for a period of two years from the time of the receipt of the prescriptions.

Fashions and Psychoanalysis—The truth is that the nucleus of genuine psychological study has little or nothing to do with the fashion of psychoanalysis, just as the nucleus of genuine biological study has very little to do with the pantomime popularity of the missing link. In so far as that strictly scientific science really does exist, it has amid its high merits certain marks which unfit it to be a fashion of this kind; just a really subtle medical diagnosis could never express itself in a patent medicine.—Gilbert K. Chesterton, the Century, May, 1923.

BOOK REVIEWS

New and Nonofficial Remedies, 1923, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1923. Cloth. Price, postpaid, $1.50. Pp. 415 + XXXVI. Chicago: American Medical Association, 1923.

The progressive, up-to-date physician cannot dispense with the newer remedies, proprietary and nonproprietary. Yet he can neither select them on the basis of the manufacturers' claims alone, nor devote his patients to experiments while he tries out those claims.

New and Nonofficial Remedies is the publication of the Council on Pharmacy and Chemistry through which this body annually presents the American medical profession with disinterested, critical information about the proprietary medicines which are offered to the profession, and which the Council deems worthy of recognition. In addition to the descriptions of proprietary preparations, the book contains descriptions of those nonofficial remedies which the Council deems deserving of consideration by the profession.

A valuable feature of the book is the grouping preparations in classes. Each of these is introduced by a general discussion of the group. Thus the silver preparations, the iodine preparations, the arsenic preparations, the animal organ preparations, the biologic products, etc., each is preceded by a general, thoroughly up-to-date discussion of the particular group. These general articles compare the value of the products included in the group with similar pharmacopeial and other established drugs which it is proposed that these proprietary preparations shall supplant.

A glance at the preface of this volume shows that the book has been extensively revised. In fact, each edition of New and Nonofficial Remedies is essentially a newly written book, brought up to date by those who speak with authority on the various phases of therapeutics.

Physicians who wish to know why a given proprietary is not described in New and Nonofficial Remedies will find the References to Proprietary and Unofficial Articles not found in N. N. R. of much value. In this chapter (in the back of the book) are given references to published articles dealing with preparations which have not been accepted.

New and Nonofficial Remedies should be in the hands of all physicians who prescribe drugs. The book contains information about the newer materia medica which cannot be found in any other publication.

The book will be sent postpaid by the American Medical Association, 535 North Dearborn Street, Chicago, on receipe of one dollar and fifty cents.

The Form and Functions of the Central Nervous System. An introduction to the study of nervous diseases. By Frederick Tilney, M. D., and Henry Alsop Riley, M. D. Second edition. 1019 pages. Illustrated. New York: Paul Hoeber. 1923. Price $12.00.

The American medical profession has done itself credit in making a reprint of this splendid work necessary within less than two years from its first publication. The authors have seized the opportunity "to correct typographical and other errors usually found in first editions" and to make minor changes, including some suggested by readers. In the main the book is unchanged.

There is no work extant which quite fills the place which this does and it is an inexhaustible source for reference for the neurologist, as well as for the general practitioner and the student in search of full information. The paragraphs on symptomatology and the discussions of the principal syndromes connected with the different subdivisions of the cerebro-spinal axis, together with the case histories and autopsy reports, make its practical value inestimable. Glossary and bibliography put the finishing touches to a work which has added immensely to the prestige of American neurology.

The press work of the second edition is improved, both text and illustrations standing out more sharply than in the first edition. This is no doubt due to the change in paper. The volume is more compactly bound than before, but still has the distressing weight of six and a quarter pounds, from which no escape can be suggested.

E. W. T.

Bronchoscopy and Esophagoscopy. A manual of peroral and endoscopy and laryngeal surgery. By Chevalier Jackson. 356 pp. Illustrated. Philadelphia and London: W. B. Saunders Company. 1922.

In this little book of 310 pages, Jackson covers in general the same ground to which he devoted 710 pages in his "Peroral Endoscopy." The more recent work is designed as a manual of technic but the author included considerable of a clinical and theoretical nature. These are the most unsatisfactory parts of the book, for example the discussion of the nature of cardiospasm.

There is no discussion of instrumentarium or technic except as in use at Jackson's clinic. Those who prefer other methods will accordingly find the book very incomplete. The chapter on gastroscopy does not fully reflect the present status of this procedure and could be omitted entirely without serious loss.

The definite stamp of the author's personality is evident throughout the work and is a welcome feature. His "do's" and "don'ts" may be a little epigrammatic but they contain a lot of sense. However, there are dogmatic statements which are not endorsed by all workers and which might not have the full endorsement of all physicians. For example, the condemnation of blind bouginage of the esophagus for any purpose is contrary to the experience of many physicians who find this a valuable procedure. It is open to discussion whether bouginage is more dangerous than escophagoscopy. The insistence on sterile technic is not in conformity with universal opinion as the author states. For esophagoscopy, at least sterilization of the instruments after use, meets all reasonable requirements. The recommended use of 20 per cent cocaine solution as a local anesthetic without admixture of adrenalin is a hazardous departure from the methods of some of the best clinics.

In general, we may say that as a presentation of Jackson's methods this work is excellent. As a scientific monograph on the subject it leaves much to be desired.

G. F. H.

Diseases of the Nervous System, a Text-Book of Neurology and Psychiatry. By Smith Ely Jelliffe, M. D., and William A. White, M. D. Lea and Febiger, Philadelphia and New York, 1923.

The broad conception of disease in general and neuropsychiatry in particular held by the authors is well known and appreciated by a large body of physicians.

The fourth edition just issued holds to these broad principles and applies them in diagnosis and treatment of individual conditions.

In the preface to the new edition, the authors have defined their purpose—a purpose they have held constantly in mind throughout the book. They have conceived "it to be of much greater importance to reflect in their work the major tendencies which are operating throughout the field of neuropsychiatry, so that the student will not only have pre-

sented to him a reasonably complete statement of the accepted body of facts as they now exist in this branch of medicine, but that he will be enabled to grasp the meaning of the various movements that are pushing neuropsychiatric thought forward into new territories. In other words, the authors have not been content with presenting a certain amount of pabulum, so to speak, for the absorption of the student, but have endeavored to produce a book, which, if conscientiously used, will stimulate his thought." W. E. M.

BOOKS RECEIVED

Internal Medicine. A work for the practicing physician on diagnosis and treatment with a complete desk index, in three volumes, illustrated with 427 text illustrations and fourteen in color. Medical diagnosis in two volumes, by James C. Wilson, M. D., emeritus professor of medicine and clinical medicine in the Jefferson Medical College, and emeritus physician to its hospital, assisted by Creighton H. Turner, M. D. Volume III, Treatment, by James C. Wilson and Samuel Bradbury, M. D., member of the faculty of the Cornell University Medical College; visiting physician, New York City Hospital, etc. Philadelphia and London: J. B. Lippincott Co.

Applied Psychology for Nurses, An Introduction to. By Donald A. Laird, assistant professor of psychology, University of Wyoming; lecturer in nursing psychology, Ivinson Memorial Hospital School of Nursing. Illustrated. J. B. Lippincott Co., Philadelphia and London.

Optotypes. Consisting of test-letters and pictographs for measuring the acuteness of vision. By John Green, M. D., professor of ophthalmology in St. Louis Medical College (Washington University), 1886 to 1913, and A. E. Ewing, M. D., professor emeritus of ophthalmology in Washington University. With thirty-five engraved plates. St. Louis: C. V. Mosby Co., 1923.

Tonsillectomy. By means of the alveolar eminence of the mandible and a guillotine, with a review of the collateral issues. By Greenfield Sluder, M. D., clinical professor and director of the Department of Rhinology, Laryngology, and Otology, Washington University School of Medicine, St. Louis. Ninety illustrations. St. Louis: C. V. Mosby Co., 1923.

Epidemiology and Public Health. A text and reference book for physicians, medical students, and health workers, in three volumes. By Victor C. Vaughan, M. D., emeritus professor of hygiene in the University of Michigan, assisted by Henry F. Vaughan, Dr. P. H., commissioner of health of the city of Detroit, and George T. Palmer, Dr. P. H., epidemiologist for the department of health of the city of Detroit. Volume II, Nutritional Disorders, Alimentary Infections, Percutaneous Infections. St. Louis; C. V. Mosby Co., 1923.

The Tonsils, Faucial, Lingual, and Pharyngeal, with some account of the posterior and lateral pharyngeal nodules. By Harry A. Barnes, M. D., instructor in laryngology, Harvard Medical School. Illustrated. Second edition. St. Louis: C. V. Mosby Co., 1923.

Cerebrospinal Fluid in Health and in Disease. By Abraham Levison, M. D., associate in pediatrics, Northwestern University Medical School, with a foreword by Ludvig Hektoen, M. D. Sixty-nine illustrations, including five color plates. Second edition, thoroughly revised. St. Louis: C. V. Mosby Co., 1923.

Text-book of Therapeutics, including the Essentials of Pharmacology and Materia Medica. By A. A. Stevens, M. D., professor of applied therapeutics, University of Pennsylvania, Philadelphia. Sixth edition, entirely reset. Octavo of 793 pages. Philadelphia and London: W. B. Saunders Co., 1923. Cloth, $6.25 net.

Medical State Board Questions and Answers. By R. Max Goepp, M. D., professor of clinical medicine at the Philadelphia Polyclinic; assistant professor of clinical medicine, Jefferson Medical College. Fifth edition, thoroughly revised. Octavo volume of 731 pages. Philadelphia and London: W. B. Saunders Co., 1923. Cloth, $6 net.

First Aid X-ray Atlas of Fractures and Dislocations, including illustrated description of the skeleton. By H. C. Orrin, surgeon, ministry of pensions Orthopedic Hospital; late civil surgeon the Third London General Hospital. New York: Paul B. Hoeber, 1923.

First Aid X-ray Atlas of the Arteries. By H. C. Orrin, surgeon, ministry of pensions Orthopedic Hospital; late civil surgeon to the Third London General Hospital. Paul B. Hoeber, New York, 1923.

MEDICAL ECONOMICS

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sermann Laboratories, Radium Chemical Co., Radium Co. of Colorado, Reid Bros., Sanborn Co., Boston; R. L. Scherer & Co., G. H. Sherman, Taylor Instrument Co., Travers Surgical Co., Victor X-ray Corporation, Vulcan Electric Co., Walters Surgical Co., Wedekind Co., Wilson Laboratories.

There were also fine exhibits by many firms who have been among our advertising friends in the past and whose co-operation we hope to have again in the near future.

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OF SERVICE
TO THIS INSTITUTION,
AND REVERE HIS NAME,
FOR ITS INSPIRATIONAL IDEALS
WHICH INFLUENCED THE GROWTH
AND DEVELOPMENT
OF THE
SCHOOL OF NURSING,
SAN FRANCISCO, 1922
1885-1921.

This memorial tablet was dedicated and placed at the Children's Hospital on April 25, 1923. The invocation was by Dean Gresham and the presentation by Miss Goodhue. Dr. George J. McChesney accepted the tablet on behalf of the hospital, and the exercises were closed with a eulogy of Dr. Sherman's great service to humanity, by Dr. James B. Cutter, who said:

"He learned self-government, and not to be led aside by anything, and cheerfulness in all circumstances, as well as in illness, and a just admixture in the moral character of sweetness and dignity, and to do what was set before him without complaining, I observed that everybody believed that he thought as he spoke, and that in all that he did he never had any bad intention, and he never showed amazement and surprise, and was never in a hurry, and never put off doing a thing, nor was perplexed nor dejected, nor did he ever laugh to disguise his vexation, nor on the other hand was he ever passionate or suspicious.

"He was accustomed to do acts of beneficence, and was ready to forgive, and was free from all falsehood, and he presented the appearance of a man who could not be diverted from right, rather than a man who had been improved.

"This is the portrait of Harry M. Sherman, as gleaned from the life of Marcus Aurelius, to whom he has been likened, and whose memory we are assembled here today to honor, by the installation of this beautiful bronze tablet, which is to be placed in the 'Little Jim ward,' a spot closely and tenderly associated with Dr. Sherman's professional and personal life.

"We realize that while Dr. Sherman has passed away, his deeds have not passed away, and his individuality remains among us.

"The encouragement for us, in contemplating his life, lies in the fact that he did not live for himself alone, rather that in his active and unselfish life he typified a noble race, reflecting in all he did, those fine qualities which we admire and try to emulate.

"Honorable with a type of integrity, peculiarly personal as an attribute, yet kind and generous in his judgment, with a severe self rule and discipline, yet tender in his regard for the rights and sensibilities of others, he was called by one who loved him much, 'Anax Andron,' King of Men, thus characterizing his attainments and his virtues.

"Harry M. Sherman rated so far above the rank and file of men with whom he lived and worked, that like other men of whom I think of similar attainments, he suffered during his life time from lack of their full appreciation of the height of his endeavors, and the purity of his purposes.

"To be called his friend conferred a blessing and distinction.

"Dr. Sherman, in concert with Dr. Charlotte Brown, gave the forward impulse to the Children's Hospital in its early years, and by his long and brilliant service made it as it will be for all time the center of orthopedic surgery on the Pacific Coast.

"So, in honoring him we use the words of one of his closest associates and dearest friends, 'Honor is an external adjunct, and pertains rather to the honorer than to the person honored.'

"We can not do anything to change Harry M. Sherman. He has gone beyond the boundaries of time and space, but by honoring him a change is wrought in us, and by a contemplation of what he was, both in excellencies of character and in the purposes and accomplishments of his life, we clarify our own souls and stimulate ourselves to follow his example."

FIFTY YEARS OF NURSING

Nurses have recently celebrated the fiftieth anniversary of nursing as a profession in the United States. The first school of nursing in this country was founded at Bellevue Hospital, New York, in May, 1873. The development and growth of these schools is indicated:

Year	Number of Hospital Schools	Number of Students
1880	15	323
1890	35	3,985
1900	432	11,164
1910	1,121	29,805
1920	1,755	55,000

During the fifty years, about 164,000 have graduated as nurses, and it is estimated that some 75,000 are practicing their profession. There are about 15,000 nurses engaged in public health work and some writers believe that this number should be increased to 50,000.

In looking over the mass of comment called forth by the mid-century celebration one feature stands out prominently and significantly: Some of the writers feel that the greatest accomplishment of the profession is throwing off the yoke of physician and hospital control and reaching the place where they are "grouped with medicine, law and theology as one of the learned professions." Other speakers consider that this place has not been reached and never should be. They believe that the great future of nursing requires that they hold to the position of technical assistants to physicians in preventing and treating disease.

All well-wishers of nurses realize that much of the future growth and usefulness of the profession depends upon the right solution of this their greatest problem.

Pharmacology and Therapeutics

COUNCIL ON PHARMACY AND CHEMISTRY OF THE A. M. A.

(Reported by W. A. Puckner, Secretary)

The following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Non-official Remedies:

Abbott Laboratories—Neutral acriflavine (Abbott); tablets neutral acriflavine (Abbott), 0.03 gm. (½ gr.); enteric coated tablets neutral acriflavine (Abbott), 0.03 gm. (½ gr.).

Hynson, Wescott & Dunning—Phenoltetrachlorphthalein (H., W. & D.); ampules phenoltetrachlorphthalein (H., W. & D.).

Powers-Weightman-Rosengarten Co.—Carbon tetrachlorid C. P. (P.-W.-R.).

Non-proprietary articles—Neutral acriflavine; carbon tetrachloride medicinal.

Parke, Davis & Co.—Pollen extract ragweed (P., D. & Co.); pollen extract timothy (P., D. & Co.).

Non-proprietary article—Insulin.

NEW AND NON-OFFICIAL REMEDIES

Tincture No. 111 Digitalis (P., D. & Co.)—A fat-free tincture of digitalis which, standardized by the minimum lethal dose frog heart method of Houghton, is 50 per cent stronger than tincture of digitalis, U. S. P. The actions and uses of tincture No. 111 digitalis (P., D. & Co.) are the same as those of tincture of digitalis. It was introduced at a time when the "fat" of digitalis was believed to cause gastric disturbances. This claim of superiority is not tenable and the preparation is sold simply as a standardized tincture of digitalis. To minimize deterioration through light and air, the preparation is marketed in one ounce amber vials and saturated with carbon dioxide. Parke, Davis & Co., Detroit, Mich.—Journal A. M. A., April 7, 1923, p. 1003.

Carbon Tetrachloride C. P. (P. W. R.).—A brand of carbon tetrachloride medicinal (N. N. R.). Powers-Weightman-Rosengarten Co., Philadelphia.—Journal A. M. A., April 21, 1923, p. 1143.

Modified Pneumococcus Vaccine—A vaccine or "antigen" prepared by digesting a suspension of pneumococci, types 1, 11, 111, and group 4 at 37 C. until about 95 per cent of the organisms have become gram-negative and the mixture is relatively non-toxic to guinea pigs. It is believed that this method yields a vaccine with greater protective power. There is some evidence that this vaccine is of value in the treatment of lobar pneumonia. It is not intended for prophylactic use.

Pneumococcus Antigen (Lilly)—A modified pneumococcus vaccine (N. N. R.). It is marketed in 5 cc. vials, each cc. containing twenty billion partially autolyzed pneumococci. Eli Lilly & Co., Indianapolis, Ind.—Journal A. M. A., April 21, 1923, p. 1143.

Neo-Silvol—A compound of silver iodid with a soluble gelatin base, containing 18 to 22 per cent of silver iodid in colloidal form. Neo-silvol, even in concentrated solutions, causes neither irritation of mucous membranes nor coagulation of albumin. It does not stain the skin. It is claimed that neo-silvol in laboratory tests for germicidal value has been found as effective as phenol in its action on bacteria. Neo-silvol is intended for the prophylaxis against, and treatment of infections of accessible mucous membranes and is claimed to be indicated in affections of the genito-urinary tract and of the eye, ear, nose, and throat. Parke, Davis & Co., Detroit, Mich.—Journal A. M. A., April 28, 1923, p. 1218.

Phenoltetrachlorphathalein (H., W. & D.).—A dibasic dye formed by the condensation of phenol and tetrachlorphathalic acid or its anhydride. Phenoltetrachlorphthalein has been used for the determination of the functional output of the liver. It can be used, in the form of the sodium salt, intravenously, but cannot be given subcutaneously or intramuscularly. The substance may also be obtained in the form of ampules phenoltetrachlorphthalein containing a solution of disodium phenoltetrachlorphthalein. Hynson, Wescott & Dunning, Baltimore, Md.—Journal A. M. A., April 28, 1923, p. 1218.

Neutral Acriflavine—It has the actions and uses of acriflavine (see New and Non-official Remedies, 1923). Being neutral in reaction, it is claimed not to have the smarting and irritating effects of acriflavine solutions. Neutral acriflavine is a brownish-red, odorless, granular powder. It is soluble in less than two parts of water, forming a brownish-red solution which fluoresces on dilution and which has a bitter taste. The Abbott Laboratories, Chicago, Ill.—Journal A. M. A., May 19, 1923, p. 1455.

Neutral Acriflavine (Abbott)—A brand of neutral acriflavine (N. N. R.). It is sold in substance and also in the form of tablets neutral acriflavine (Abbott), 0.03 gm., and enteric coated tablets neutral acriflavine (Abbott), 0.03 gm. The Abbott Laboratories, Chicago, Ill.—Journal A. M. A., May 19, 1923, p. 1455.

THE COMMUNITY CHEST

Its Advantages and Disadvantages—(As Summarized by Mr. Frank Chapman in the Modern Hospital

Advantages Enumerated—A. Relief from financial worry and the consequent release of the executive officer for really executive duties is the most invariable primary advantage given.

B. Next in order of importance, in the opinion of those who have furnished information, is the opportunity for community education, i. e., the disseminating of the idea of community philanthropy to the community as a whole. The annual drive presents a medium for placing the needs of the philanthropies of the community before the general public in much better form than has been possible in the past.

C. As a corollary to this, is the opportunity for communal participation, or, in the words of one of the leaders of the Cleveland Community Chest, "spreading the base' of the philanthropic giving of the city. To illustrate specifically this point, fourteen years ago less than 4600 people gave $5 or more to the philanthropies of Cleveland. (This does not enumerate those giving to the Catholic charities.) Today close to 177,000 give to the same group of agencies.

D. Next in importance is given the co-ordination of the work of the various agencies. The elimination of overlapping and the stimulation of a spirit of friendly co-operation between various groups engaged in the same type of work unquestionably bespeak a higher degree of professional efficiency.

E. With the close check-up of the financial performance and the publicity given vital records of the hospital, there is unquestionably a stimulation to higher standards of business efficiency. This is accomplished in the centralized purchasing bureaus, the formulation and use of standards of purchase, the centralized collection of accounts and many other activities that have been and are being developed in these various communal groups.

There are of course in any scheme as large as this inherent disadvantages; and these disadvantages as given by those who have furnished the information are listed below:

Disadvantages Given—A. The possibility of creating an impression that there is an inexhaustible supply of funds. To illustrate this point specifically, the chairman of one Community Chest has called attention to the fact that out of every dollar spent in hospital operation in 1914, thirty-one cents was contributed, while in 1923, the contribution demands for the hospitals of the same community is forty-seven cents per dollar spent.

Such a statement is food for very serious thought, and but emphasizes the necessity of the closest possible scrutiny of the budget demands of the individual agencies, and a rather autocratic allocation of funds to take care of the services of the various hospitals.

B. Loss of personal touch. This is expressed in the fear that by reason of the amalgamation of the philanthropic appeal of the community the particular friends of the hospital will lose sight of the intimate operation of that institution.

C. Improper distribution of funds. This is expressed in the statement that is made by one hospital that a larger amount of money in proportion to services rendered was furnished to another hospital than it obtained. This point again emphasizes the absolute necessity of conscientious, scientific management of the Fund and the general acceptance of the equity of that administration by the Community Chest as a whole.

D. The creating of a feeling of ownership by contributors. This thought is expressed by one superintendent, calling attention to the fact that residents of the community are making demands by reason of their contribution to the Community Chest. (If the author may be permitted the comment, this is an advantage rather than a disadvantage. Certainly it would seem highly desirable that our citizens think in possessive terms of their hospitals.)

E. Sacrifice of popular agencies. This thought is expressed by an individual who says that unquestionably individual agencies with a popular appeal can get more money individually than they could by participation in the Chest.

Commenting editorially upon the three articles of which Chapman's is the last, the editor of the Modern Hospital says:

"Whatever untenable attitude of individualism hospitals may have taken in the past, they must henceforth take their place with the other social welfare agencies of the community, and through co-operative planning and work assist in eradicating the abuses of miscellaneous and unrelated social work, in establishing high standards of service and kindred activities.

"Just how far hospitals are already participating in this community organization movement as it now exists in about 125 American cities we have no means of knowing, but some conception of the degree of this participation may be gained from the figures gathered by Mr. Chapman from the ten cities from which he sought information for the basis of his article. In three instances the hospitals do not participate in the financial federation of their community. In the remaining seven instances the approximate percentage of budget requirements of the hospitals provided for by the community chest runs from ten to twenty-seven per cent. In three instances only a limited number of hospitals participate."

Sad Comment Upon Medical Licensure—California licensed 405 graduates of low-grade medical colleges, the largest number licensed in any State during the last six years. The next largest numbers licensed were 177 in Illinois, 150 in Arkansas, 149 in Connecticut, 146 in Massachusetts, 141 in Missouri, and 120 in Colorado.—From editorial in Journal of the American Medical Association, April 28, 1923.

The Board of Medical Examiners will hold a regular meeting at Native Sons hall, 414 Mason street, San Francisco, July 9 to 12 inclusive, for the purpose of holding examinations, legal hearings, and other business that may properly come before the board.

C. B. PINKHAM,
Secretary-Treasurer.

TRANSFERRED

J. A. McKenney, from Fresno county to Alameda county; Charles R. Fancher, from Stanislaus county to Alameda county; Harry Auslen, from Contra Costa county to Alameda county; William F. Priestley, from San Joaquin county to Alameda county; C. E. Harrison, from San Bernardino county to Los Angeles county; James E. Harvey, from Yuba-Sutter county to Los Angeles county; Carl S. J. Tillmanns, from Imperial county to Los Angeles county.

NEW MEMBERS

Clovis—Earl B. Newton.

Madera—Ray R. Dearborn.

El Centro—F. W. Peterson.

Maricopa—Mervyn F. Frandy.

Los Angeles—James A. Bozarth, Harry L. Fowler, Homer L. Fulenwider, Frank W. McKee, Wilbert Mowatt, G. A. Scroggs, David Thomson, Fred V. Watson, Floyd M. White, Ross R. Anderson, J. E. Baker, William Sidney Bowers, A. Brockway, Howard O. Dennis, William Happ, Howard E. Hart, C. C. Mason, Thomas W. Moffitt, George W. Moore, Joseph A. Parker, Joe Zeiler.

Pacific Grove—William C. Yates.

Turlock—N. Genevieve Chipman.

Crow's Landing—Philip R. Fulton.

San Diego—Nunzio Portoghese.

San Francisco—C. E. Locke Jr., Kunisada Kiyasu, Irvin C. Schumacher.

Sacramento—Michael J. Lipp, John Dale Rogers.

Hollister—Eberle C. Sheldon.

Williams—Ney M. Salter.

Colusa—W. T. Rathbun.

Visalia—C. L. Wilmoth.

Sacramento—Charles E. Thompson.

Berkeley—Gurdon Potter.

Oakland—Frank Ray Missner.

DEATHS

Barnes, Henry E W. Died at Santa Ana, May 30, 1923, age 74. Graduate of the State University of Iowa College of Medicine, Iowa City, 1873. Licensed in California in 1901. He was a member of Orange County Medical Society, the State Medical Society, and the American Medical Association.

Neff, Francis F. Died at Concord, June 17, 1923, age 61. He graduated from the Jefferson Medical College, Philadelphia, 1887. Licensed in California in 1889. Dr. Neff was a member of the Contra Costa County Medical Society, the State Medical Society, and the American Medical Association.

Orr, James Lawrence. Died at San Diego, May 7, 1923, age 44. Graduate of the Medical College of the State of South Carolina, Charleston, 1901. He was a member of the South Carolina Medical Association and the American Medical Association.

Rogers, Benjamin H. Died at San Diego, May 2, 1923, age 60. Graduate of the Jefferson Medical College, Philadelphia, 1888. Licensed in California in 1922. He was a member of the San Diego Medical Society, the State Medical Society, and the American Medical Association.